DOCUMENT RESUME

ED 251 085 IR 050 907

TITLE	The Systems Function. SPEC Kit 29.
INSTITUTION	Association of Research Libraries, Washington, D.C. Office of Management Studies.
PUB DATE	77
NOTE	110p.
PUB TYPE	Collected Works - General (020) -- Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	*Academic Libraries; Annual Reports; Higher Education; Library Surveys; *Management Systems; Occupational Information; *Organizational Effectiveness; Position Papers; *Research Libraries; *Systems Analysis; Systems Analysts; *Systems Development; Tables (Data)

ABSTRACT

This kit on the systems functions in Association of Research Libraries (ARL) member institutions contains 10 source documents from ARL libraries and a summary of data from a 1976 survey on the organization, staffing, and operation of library systems functions. Source documents include: (1) "Library Systems Office Annual Report, 1974-75" (University of California at Berkeley); (2) "Inventory of Computer Based and Systems Oriented Projects" (Columbia University); (3) "Libraries and Audiovisual Center Cost Allocation Study" (Purdue University); (4) "Systems Office Annual Report, 1976-77" (Yale University); (5) "Cost of Engineering Library Card Catalog Creation, Derivation of Costs for Retrospective Conversions of Catalog Records Using OCLC Input Methods" (University of Nebraska, Lincoln); (6) "Preliminary Thoughts on Automation" (University of Nebraska Libraries); and (7) the following position descriptions--"Senior Electronic Data Processing Systems Analyst" (University of California at Santa Barbara); "Head, Systems Planning and Development" (University of Alberta); "Senior Programmer/Analyst, Programmer/Analyst, and Library Systems Manager" (University of Massachusetts); and "Department Head, Post Catalog" (Temple University). A concise summary of systems functions focuses on the current role and utilization of systems analysis in academic libraries; the contributions systems activities have made to library operations; the organization of the systems function; and future needs and considerations in this area. (THC)

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SEPTEMBER 1976

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The Systems Function

Kit 29

UPDATED 1977

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spec flyer Sept., 1976 No. 29 OMS
Systems and Procedures Exchange Center
ISSN-0160 3574

THE SYSTEMS FUNCTION IN ARL LIBRARIES

This Flyer reports the results of a January 1976 SPEC survey requested and supported by the University of California, Los Angeles Library, on the systems function in ARL Libraries. Four aspects of the systems function are covered in this Flyer: the current role and utilization of systems analysis in academic libraries; the contributions systems activities have made to library operations; the organization of the systems function; and future needs and considerations in this area.

Increased application of systems techniques appears among a range of library activities -- in the development and operation of automated systems, as an approach to organizational planning and problem-solving, and in the development of manual operations. The growing complexity and magnitude of library operations, coupled with the availability of automated systems have necessitated increased application of the systems approach in academic libraries. Additionally, tightened budgets have stimulated greater concern with the library's actual output, with eliminating ineffective procedures and with synchronizing library operations. Systems analysis, as an approach to organizational, and procedural problems, frequently permits the library to further benefit from its human, financial, and automated resources.

The Systems Function in Library Automation Projects. As many libraries implemented computerized cataloging, acquisitions, and circulation systems in the 1960's, internal systems analysts assumed large responsibility for their design, implementation, and operation. However, with the growing availability of commercially developed systems and cooperative library networks, systems analysts' efforts have become increasingly oriented toward evaluating and selecting among these systems and in providing an interface between the library, and commercial vendors and/or library networks. But, the highest priority of the systems effort in approximately 60 percent of the survey respondents remains the operation and design of local, automated systems. Aside from operating automated cataloging, acquisition, and circulation facilities, systems analysts are also involved in projects such as shelf-list conversion, production of nonconventional public catalogs, and on-line reserve book control systems. Automated serial operations also receive considerable attention from systems analysts, particularly those facilitating the production of union lists of serials and access to serial order and billing information. In a few reporting libraries, systems analysts have developed automated accounting systems and the retrieval of documents in the library's management information system. Other responsibilities in this area may include: reorganization of departments affected by automation, budgeting for automation, updating or adding capabilities to existing systems, supervising and training programming staff, and documenting and preparing procedural manuals.

The Systems Function in Organizational Planning and Problem-Solving. In at least 55 percent of the responding libraries, systems techniques have proven useful when applied to examining and improving manual systems. Such techniques have resulted in more effective staff and space utilization and well coordinated work flow. Systems analysts frequently serve as internal consultants, helping departmental librarians and administrators develop new programs and expedite existing operations. Their cost and use analyses and feasibility studies have also provided the basis for operational modifications. Examples of other projects include

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evaluating the benefits of approval plans, documenting and revising technical service operations, planning the production of an index produced in-house, conducting book loss studies, making procedural recommendations for moving collections to new locations, evaluating equipment, and strengthening management information systems.

Organizational Aspects of the Systems Function. The management of the systems function and its role within the library's framework depends largely upon the types of activities in which the systems personnel are involved. For instance, among 55 percent of the libraries where the emphasis is largely on designing and operating automated systems, a separate systems unit exists. Where the systems unit operates more as a planning or problem-solving activity, responsibility is frequently delegated to the planning department or a systems unit within that department. Among 14 percent of the responding libraries, the systems function exists within the planning unit. Systems responsibility may also be delegated to the research and development unit (18 percent of the responding libraries). Among 29 percent of the responding libraries, more than one department shares responsibility for the systems function. In other cases, university computer center personnel and outside consultants may perform the necessary systems work. The average number of professional staff operating the library systems function among the survey respondents is 3.2 F.T.E.'s. Usually these personnel have specialized backgrounds in systems analysis and/or computer programming. In 8 percent of the responding libraries, personnel with a background in statistics participate in the systems function. Nonprofessional staff generally number between .5 and two. Budgets for the systems function represent a wide range usually reflecting the level of involvement with automated systems.

Future Needs and Considerations. The systems approach in its most basic form provides a way of relating various activities' functions to each other, to the library's goals and objectives, to the environment, resources, measures of performance, and the library's services. In theory, then, the systems approach can contribute to many library operations. However, several problems inhibit more wide-spread application. One reported hindrance stems from ineffective communication between systems and library personnel. A second problem in some libraries may originate from a lack of quantitatively stated goals and objectives. As systems analysts frequently evaluate an activity's output in terms of the library's goals and objectives, these goals and objectives should be stated in quantified terms if the systems function is to be totally effective. In some instances, there is a tendency to confine systems activities to automation projects rather than to expand its usage throughout the range of managerial and manual systems. However, as libraries increasingly take advantage of commercially available automated systems and networks, systems analysts may become more involved in planning and problem-solving activities. There are indications that the systems role in academic libraries will evolve toward: integrating systems techniques into the range of library activities; working more closely with the library planning or research and development office; investigating ways in which automated systems can enhance the library's management information systems; and introducing library colleagues to basic systems techniques which are applicable in their own work situations.

The Kit on the Systems Function (97 pp.) contains ten documents from ARL Libraries and a summary of data from a survey on the organization, staffing, and operation of library systems functions. The Kit was revised and updated in November 1977. Documents include annual reports, cost studies, planning documents, and position descriptions. The Kit is available for $7.50 to ARL members and SPEC subscribers and for $15.00 to all others from: SPEC, Office of Management Studies, 1527 New Hampshire Avenue, N.W., Washington, D.C. 20036.

ISSN 0160 3582

THE SYSTEMS FUNCTION IN ARL LIBRARIES

KIT 29 - SEPTEMBER 1976

UPDATED NOVEMBER 1977

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UNIVERSITY OF CALIFORNIA
LOS ANGELES

SUMMARY OF DATA

RESULTING FROM

UNIVERSITY OF CALIFORNIA - LOS ANGELES

SURVEY ON:

Organization, Staffing, & Operation of Library Systems Functions

INTRODUCTION

This Summary presents the results of a SPEC survey on the Systems Function in ARL libraries. The survey was conducted in January 1976 at the request of the University of California - Los Angeles Library, which supported the survey costs. The survey made inquiries concerning the orientation of the systems effort (automated or manual and managerial systems), the library units and personnel involved in the systems function and the types of activities included within this function. The survey also requested information concerning future trends and directions projected for the systems function in the individual libraries and descriptions of systems projects currently being conducted.

The Survey was distributed to the SPEC liaisons of all ARL member libraries. Responses were received from 67 libraries or 66 percent of ARL's membership at the time when the survey was tabulated.

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TABLE I

ORIENTATION OF LIBRARIES'

SYSTEMS EFFORTS

QUESTION II.A.1.

N = 67

ORIENTATION OF EFFORTS	NUMBER OF RESPONDING LIBRARIES	PERCENTAGE OF RESPONDING LIBRARIES
Automated Systems	60	90
Manual & Managerial Systems	37	55
Other	11	16
Combinations of Above	36	54

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TABLE 2

DISTRIBUTION OF SYSTEMS ACTIVITY RESPONSIBILITY

QUESTION II.A.2

N = 66

SYSTEMS ACTIVITIES ARE:	NUMBER OF RESPONDING LIBRARIES	PERCENTAGE OF RESPONDING LIBRARIES
Carried out by a separate library systems unit	33	50
Carried out by a library planning unit	9	14
Carried out by a library research/development unit	9	14
Carried out by staff from a variety of library units or departments	19	29
Other	26	39
Combinations of Above	19	29

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TABLE 3

ORGANIZATIONAL CHARACTERISTICS OF LIBRARIES' SYSTEMS FUNCTIONS

QUESTION II.A.3.

LOCATION OF RESPONSIBILITY	n	REPORTS TO: Director[1] # of Lib.	Director[1] % of Lib.	Asst. Dir.[2] # of Lib.	Asst. Dir.[2] % of Lib.	AVERAGE NUMBER OF FTE PROFESSIONAL STAFF	AVERAGE NUMBER OF FTE NONPROFESSIONAL STAFF	AVERAGE APPROXIMATE ANNUAL BUDGET
Separate Systems Unit	35	26	74	9	26	2.5[3,11]	2.04[3,11]	$170,683[3,12]
Library Planning Unit	6	5	83	1	17	4.1[6]	.83[7]	$ 51,376[8]
Library Research Development Unit	4[13]	3[13]	75	1	25	3.2[13,14]	.38[13]	$ 9,330[10,13]

1. or Univ. Libr. or Dean of Library
2. or Assoc. Director
3. excludes data from New York Public Library and Library of Congress.
4. n = 31
5. n = 25
6. n = 5
7. n = 3
8. n = 3
9. n = 4
10. n = 4
11. n = 25
12. n = 18
13. excludes data from National Library of Canada
14. n = 5

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TABLE 4

WAYS IN WHICH LIBRARIES EVALUATE DESIGN OR OPERATE LIBRARY AUTOMATION PROGRAMS WHEN THERE ARE NO STAFF DEVOTED TO AUTOMATED SYSTEMS

QUESTION II.A.4.

N = 27

LIBRARY USES:	NUMBER OF RESPONDING LIBRARIES	PERCENTAGE OF RESPONDING LIBRARIES
University computer center staff	16	59
Outside consultants	7	26
Library staff with background, expertise in automation	17	63
Other	8	30
Combinations of above	14	52

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TABLE 5

PRIORITIES ALLOCATED TO

ACTIVITIES WITHIN

AUTOMATED SYSTEMS FUNCTION

QUESTION II.A.5.a.

N = 59

ACTIVITY	LEVELS OF PRIORITY[1]					
	High Priority		Medium Priority		Low Priority	
	No. of Lib.	% of Lib.	No. of Lib.	% of Lib.	No. of Lib.	% of Lib.
Analysis of Automated Systems	33	56	10	17	9	15
Design of Automated Systems	35	59	9	15	10	17
Operation of Automated Systems	39	66	10	17	17	28
Evaluation of Externally Available Systems[2]	27	46	19	32	10	17
Library Research	5	8	7	12	26	44
Analysis of Work Procedures[3]	10	17	18	30	17	29
Design of Work Procedures	14	24	13	22	14	24

1. Many respondents did not indicate any priority ranking to some items
2. e.g. shared cataloging systems, commercially available circulation systems, etc.
3. e.g. work flow, time studies, etc.

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TABLE 6

PRIORITIES GIVEN TO MANUAL & MANAGERIAL ACTIVITIES

WITHIN THE SYSTEMS FUNCTION

QUESTION II.A.5.a.

N = 25

	LEVELS OF PRIORITY[1]					
	High Priority		Medium Priority		Low Priority	
	# of Lib.	% of Lib.	# of Lib.	% of Lib.	# of Lib.	% of Lib.
Library Research	9	36	14	56	5	20
Analysis of Work Procedures[2]	20	80	6	24	7	28
Design of Work Procedure	18	72	2	8	11	44

1. Many respondents did not indicate any priority ranking for some items

2. e.g. work flow, time studies, etc.

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TABLE 7

TYPES OF SYSTEMS SPECIALISTS INCLUDED AMONG LIBRARIES' STAFFS

QUESTION II.A.6

N = 49

TYPES OF SPECIALISTS	NUMBER OF RESPONDING LIBRARIES	PERCENTAGE OF RESPONDING LIBRARIES
Programmers	34	69
Systems Analysts	37	76
Statisticians	4	8
Others	16	33

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Duane E. Webster, Director/OMS
Jeffrey J. Gardner, Associate
Deanna B. Marcum, Training Program Specialist
P. Grady Morein, Associate
Maxine K. Sitts, Information Services Specialist

TO: SPEC Liaison

FROM: Jeffrey J. Gardner

We have enclosed a copy of a SPEC survey on the organization and operation of gift and exchange functions and library systems functions within academic and research libraries. It consists of questions which for the most part can be answered via checkbox. As with previous SPEC surveys, we again request that copies of existing documentation relating to library use instruction be forwarded with the completed survey. We would again emphasize the importance and usefulness of this material to your colleagues at other libraries.

The data and documentation resulting from the survey will be utilized by a staff committee at the University of California/Los Angeles Library which is subsidizing this survey. In addition, SPEC will analyze the results of the survey and prepare SPEC Flyers and SPEC Kits on the topics.

While we have kept this survey as brief as possible, we would welcome any additional comments you may wish to make. We recognize the difficulties which may arise because of the large number of variations in activities in these two areas, but we hope the results of the survey will provide us with an understanding of the organization and activities of the gift and exchange functions and the systems functions among the ARL libraries.

We hope you and/or the individuals most knowledgeable about these areas will complete the survey and return it to us before February 1, 1976. If you have any questions regarding the survey, please do not hesitate to call us.

Thank you for your cooperation.

II. Organization, Staffing and Operation of Library Systems Functions

Our interest is in two general areas: Work on automated systems; and work on manual and managerial systems. The former refers to the analysis, design, operation and/or evaluation of automated systems. The latter refers to efforts directed toward work improvement through the analysis and design of organizational policies and/or procedures to simplify work, standardize work and/or to make work more effective.

A. Nature of Library systems office and/or staff.

1. The library's systems effort is oriented toward (check all applicable):

☐ automated systems

☐ manual and managerial systems

☐ Other (describe): _____

_____

_____

_____

2. Systems activities are (check all applicable):

☐ carried out by a separate library systems unit

☐ carried out by a library planning unit

☐ carried out by a library research/development unit

☐ carried out by staff from a variety of library units or departments (e.g. no systems unit as such).

☐ Other (describe): _____

_____

_____

_____

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3. Please fill in the applicable boxes in the chart below:

If the library has a:	Reports to: (e.g. Director)	No. of FTE Prof. Staff	Number of FTE Non-Prof. Staff	Approx. Annual Budget
Separate systems unit				
Library planning unit				
Library Research/Dev. Unit				
Other: (Specify)				

4. If the library does not have staff devoted to automated systems, how does the library evaluate, design or operate library automation programs?

- ☐ Uses university computer center staff
- ☐ Uses outside consultants
- ☐ Uses library staff with background, expertise in automation
- ☐ Other (describe): _____

_____

_____

_____

5. Indicate those activities which receive attention from systems staff by entering a number 1, 2, or 3 into the applicable box: 1=high priority activity; 2=medium priority activity; 3=low priority activity.

ACTIVITIES	AUTOMATED SYSTEMS	MANUAL AND MANAGERIAL SYSTEMS
1. Analysis of automated systems		
2. Design of automated systems		
3. Operation of automated systems		
4. Evaluation of externally available automated systems (e.g. shared cataloging systems, commercially available circulation systems, etc.)		
5. Library Research		
6. Analysis of work procedures (e.g. work-flow, time studies, etc.)		
7. Design of work procedures		
8. Other: (Specify)		

6. The following systems specialists are included among the library's staff.

- ☐ programmers
- ☐ systems analysts
- ☐ statisticians
- ☐ Other (specify): _____

_____

_____

_____

7. Please forward any available documentation which would be descriptive of either automated or manual/managerial systems activities at your library, such as:

Job descriptions	Procedures manuals
Organization charts	Systems descriptions
Project proposals	Systems unit budgets
Project reports	Relevant committee reports

B. Trends and Directions

1. What major change(s) have recently occurred or are being investigated or planned related to the library's systems effort? (e.g. changes due to availability of shared cataloging systems or regional or state-wide systems activities; new or increased need for systematic planning, etc.)

   Describe briefly or provide available descriptive documentation, such as committee reports, administrative reports, etc. Consider possible organizational changes, staffing changes, etc.

2. What systems projects are currently being carried out or are in the planning stage: Describe briefly or provide descriptive documentation.

UNIVERSITY OF CALIFORNIA
BERKELEY

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TO: R. M. Dougher

FROM: S. K. Martin

RE: Library Systems Office Annual Report, 1974-75

I. OVERVIEW OF THE LIBRARY SYSTEMS OFFICE, 1974-75

The Library Systems Office has had an active and productive year. Although major new projects and efforts were undertaken, existing programs were expanded and projects under way were completed. The 1973-74 annual report recommended that further attention be given to the space and budgetary constraints of the Systems Office, and that additional communication take place between the Library administrative unit and the Library Systems Office. I am please to report that these recommendations have been effected. As of June 1975, plans were being made to exchange the two Art History/Classics Department offices for the former Marking Division room allowing the Systems Office to occupy rooms 413 and 417. (Room 413 will be a private office for the Head of the Library Systems Office; room 417 will be a double office for two members of the Systems Office staff).

In early 1975, the Library administration determined that costs for operational computer systems could be charged to the library department receiving the products of the system. With this decision, the Systems Office will be able to maintain an ongoing development program, and operational systems will not be cut back because of lack of Systems Office funds.

The role of the Systems Office in library planning has become more clear. Sufficient information flows from the Librarian's Office to other administrative units to ensure that work is not performed either in a vacuum or in duplicate. Additionally, the Library Space Planning Officer and head of the Special Projects

unit were invited to attend Systems Office staff meetings as "permanent guests," allowing further exchange of information among the units involved.

Resolution of these problems is very satisfying, and should allow us to concentrate more fully on the substantive work at hand.

II. STAFF

With the assistance of a position converted from the Serials Department, Gerald Kline was hired as an assistant programmer in April 1975. Before graduating, Jerry had worked as an SLE in the Documents Department, with responsibility for interfacing Documents records with the serials data base. We are fortunate to have acquired this bright and talented programmer.

During the year, Stephen Silberstein was reassigned from his duties as supervisor of the Data Conversion Unit in order to concentrate on systems analysis tasks. Barbara (Chris) Hollis, then an LA II coder, was appointed head of the Conversion Unit and reclassified to LA III. Walt Crawford was also reclassified during the year, to Senior Programmer. Judy Bacskai transferred from the Data Conversion Unit, where she was an LA II coder, to an LA III position as assistant to the Coordinator of the Berkeley Serials Data Base. Finally, Neal Kaske and Susan Martin were given career status with the University.

III. SERIALS SYSTEM

A. Serials Conversion

During Summer, 1974, the Conversion Unit finished converting records for the serials held by Institute libraries. As of October, 1974, the data base contained approximately 150,000 records. At that time, the unit began to work through the Central Serials Record, (CSR), converting any title not previously converted and adding bibliographic notes to those already in the data base. Work progressed on conversion until April, 1975, when the entire staff of the

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Conversion Unit was asked to participate in a feasibility study for converting the Author/Title catalog to machine-readable form. This task has been described in a report by Donald Thompson, et al.

Upon completion of this study in July, it was expected the CSR conversion would continue where it had left off, with approximately one-third of the file remaining. Approximately 190,000 records are now in machine-readable form.

B. Serials System Products

Output from the serials system continued to be used heavily by Library units throughout the year. All selectors and branch heads received weekly printouts describing the activity during the previous week of serials for which they are responsible; this report now includes new orders, payments, claims, and cancellations. Quarterly printouts of serials holdings were given to the coordinator of the serials data base, the Documents Department, and each branch library. The AUL for Collection Development and Reference Services has received regular reports of all new serial orders, in order to monitor the expenditure of serial funds. A major "special" job was the provision of new entering (Kardex) cards to the Public Health Library for every currently received serial shelved in that branch.

C. Serial Payments

The Serial Payment Division maintained its use of the System as in 1973-74. Invoices have been processed in a timely and accurate manner, allowing realistic reporting to those responsible for serial fund expenditures.

During the year, the staff of the Payment Division began using the Datapoint 2200 to enter payment data directly, rather than writing out coding sheets and sending them to be keypunched. After the usual problems associated with a new system, the procedure settled down and appears to be working satisfactorily. The Payment Division has been able to decrease the size of its staff over the

past 1½ years, and by the end of the year had begun to take on some functions previously performed by the Accounts Division (preparing the invoices for transmittal to the Campus Accounting Office).

D. Accounts Division

In Spring, 1975, a procedure was implemented whereby the weekly activity printouts, instead of going directly to the branches, were routed through the Accounts Division to assist with its bookkeeping function. The Accounts Division is no longer required to total the amount charged to each fund on each invoice, and then post each amount to its ledgers. These figures are now provided by computer; a certain amount of checking is performed, and the invoices are forwarded to Sproul Hall. It is estimated that the processing of serial invoices in the Accounts Division has been reduced from .80 FTE to .30 FTE by this procedure.

E. Key Word Index

In October, 1974 the second edition of the Berkeley Serials Key Word Index was published. Since the size of the data base had tripled, the size of the index was also triple the 1973 edition. The ten-volume set was photocomposed by Arcata Graphics, and sold for $175 list, $150 pre-publication, and $120 to UC and CSUC campus units. A run of 300 copies was produced; 150 sets had sold in the first eight months, to bring in approximately $19,000.

The Index was advertised in several professional journals, and displayed at ALA and ASIS conference exhibits. The original intention to produce a microfiche set was undermined when the Data Processing Center erroneously destroyed a tape containing a large portion of the sorted records. To recover from this loss would have required an investment of at least $2000, and it was felt that the income derived would not offset this additional expenditure.

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F. Cancellations

During Summer 1974, a large group of serial subscriptions was cancelled, using the facility of the system to produce cancellation letters to dealers and publishers. A few months later, data regarding potential cancellations were input, and management reports were generated to reflect both actual and potential cancellations.

Input for the "potential cancellation" run was keyed on the Datapoint 2200 as its first major job. This task indicated that it would indeed be possible to aim toward replacing the manual coding-keyboarding steps with direct keyboarding.

G. Claims

A claims module was designed and implemented for use with the serials system. In order to generate a claim for a missing issue, the person concerned specifies only the computer i.d. number and the volume or issue desired; these data are included in the weekly computer update run, and a claim letter is produced for each item, drawing bibliographic and vendor information from the serials data base. It is anticipated that this module will effect some staff savings in the Periodical Room, Documents Department, and all branch libraries. The system is now producing about 375 claim letters a week, or almost twice the number that were prepared using the old manual system.

H. Vendor File

To facilitate processing communications with vendor, the file of commonly used serial vendor names and addresses was converted to machine-readable form and made accessible to the programs which process the data base. Records for serials obtained from these vendors contain a code which points to the vendor file; other serials may incorporate the name and address within the bibliographic record. Invoice processing, claims and cancellations, among other products, use this file heavily.

I. Gifts and Exchange

A cooperative effort between the Gifts and Exchange Division and the Systems Office has resulted in a machine-readable file of exchange partners, with information about the material exchanged. This file, like the vendor file, can be called by various programs to provide address data for notices and letters. In addition, the Gifts and Exchange Division now has an accurate and easily updatable printout of its exchange partners, enabling it to consider discarding several manual files

J. Multi-institutional Use of the Serials System

The current serials records of the UCSF library were converted to the Berkeley format and included in the 1974 edition of the Serials Key Word Index.

UCLA worked throughout the year to convert its serials file to the Berkeley format. By the end of the year, we had received some test tapes and were sending sample printouts back to UCLA in order to tune the output to their needs.

UC Santa Barbara had expressed an interest in having its serials file maintained and printed at Berkeley. By early 1975, the UCSB file was converted and being updated by the Systems Office at DPC. The arrangement appears to be working satisfactorily; the Systems Office is billing UCSB for full computer costs.

In like fashion, the Stanford University Libraries investigated the possibility of having the Stanford serials data base maintained at Berkeley. Plans were made to initiate conversion and produce the Stanford Union List of Serials at Berkeley during the last half of 1975.

Tentative conversations were held with UC Riverside regarding use of our system; nothing definite came of these talks by the end of the fiscal year.

The Research Libraries Group (RLG) expressed a strong interest in obtaining the Berkeley software for use in the clearinghouse function. Negotiations for exchange of software were to take place in July and August 1975.

IV. ACQUISITIONS

A. Systems Study

The study of the Acquisition Department performed by Neal Kaske was completed and submitted to the University Librarian and the AUL for Technical Services in June, 1975. It is expected that a number of the recommendations made in this report will be implemented.

B. Accounts Division

As described above, the Accounts Division has benefited from products of the automated serials system.

V. CIRCULATION

A. System Procurement

After months of uncertain status, the procurement of a turn-key circulation system made leaps of progress. Joan Aliprand spent the major portion of her time during the year in the following tasks: (1) establishing specifications for a UC circulation system with respect to UCB Circulation Department needs; (2) participating in negotiations with CSUC to determine whether the two institutions could go out for a joint bid (they could not); (3) assisting Jay Cunningham in writing a Request for Proposal; (4) with Eileen Cook of UCLA, establishing evaluation standards for bids; and (5) serving on the Technical Evaluation Team, with Ken Legg, to select a successful bidder. Three bids were received, and by June 30, 1975, a purchase order had been sent to CLSI indicating intent to negotiate a contract. Funds from both UCLA and Berkeley were liened under this purchase order.

During the year, the circulating units of the General Library were asked to describe their loan policies. Responses were synthesized, and the results submitted to the LAC Circulation Committee.

Ms. Aliprand, with other members of the Technical Evaluation team, visited the libraries at the University of Utah and the University of Houston to observe

operational CLSI systems. In addition, she and Mr. Legg became involved with the Steering Committee's Subcommittee on Circulation Policies of the Northern Regional Planning Committee in order to promote standardization of loan policies among campuses.

B. Patron Card

The work on design and implementation of a machine-readable identification card, which had been deferred from the previous year, was carried out by the Administrative Information Systems Office. The resulting report indicated that the campus cannot assist the Library by implementing a standard identification card in the foreseeable future. Installation of a turn-key circulation system, therefore, must include funds and procedures for library issuance of machine-readable borrowers' cards. It has not been determined yet exactly how this problem will be handled.

C. Staff Presentations

During the year, Ms. Aliprand disseminated and received information about the Circulation System in several ways: (1) she was a member of the LAC Circulation Committee; (2) she made presentations to meetings of branch heads and LAC; and (3) she gave a "popular lecture" (described below) on the progress of the circulation effort. She has worked closely with the Circulation Department throughout the year.

VI. CATALOGING

A. The BIPList (Books-in-Process List), which began during 1973-74 by using UCLA as a processing center, continued in 1974-75. In January, output was changed from hardcopy to microfiche, allowing more cost-effective operation of the system. The Systems Office has continued to act in an advisory capacity to the Catalog Department; plans call for moving the operation of the system to Berkeley and interfacing on-order data with the BIPList and the serials system.

B. Stephen Silberstein worked with the Serials Cataloging Division during the year to propose a revised work flow for serials which would eliminate much manual processing and duplication of effort. This proposal has been received by the Catalog Department and is pending.

C. BALLOTS Searching

As the Datapoint located in the Catalog Department was not being used full-time, the administration of the Catalog Department requested investigation of its use for searching BALLOTS file to find data which would then be submitted as an LC card number search to BibCenter. Plans were under way by Summer, 1975, to establish an account at the Stanford Center for Information Processing for a six-month trial of BALLOTS searching.

D. Shelflist Count

As in 1973-74, assistance was given to the Catalog Department to program and run shelflist statistics for seventeen research libraries.

VII. SPECIAL PROJECTS

A. Moffitt Book Loss Study

After initial investigations showed that the loss rate in high-use areas of the collection might warrant the acquisition of a book security system, Neal Kaske joined with Donald Thompson in designing and carrying out a study of the loss rate at Moffitt Library. Moffitt staff performed the bulk of the data-gathering. The results indicated that a detection system would indeed be cost-effective in the Moffitt environment. Several other libraries, including other UC campuses, are now interested in performing studies based on the same methodology. A report was submitted to the AUL for Public Serives.

b. Systems Seminars and "Popular Lectures"

Three sets of systems seminars were given during 1974-75, and another was scheduled for July, 1975. At the close of July, approximately sixty members

of the Library staff had attended a seminar series. The 1975 seminars were three 1½ hour sessions each, with several members of the Systems Office giving 45-minute talks. Based on the less than successful experiment with a practicum session last year, it was decided to restrict the seminars to lecture and discussion only.

The concept of "popular lectures" was initiated in Spring, 1975. Several specific topics were identified as being of potential interest to the Library staff; among these were circulation, the key word index, and the book loss study. Announcements of single 1½ hour sessions for each topic were printed in CU News, with an invitation for any interested member of the staff to attend. Each session drew an attendance of twelve to fifteen people; the sessions were successful, but not outstanding. A decision has not been made regarding further use of this mode of communication.

C. BALLOTS

With the University-wide Library Automation Program, the Systems Office spent a significant amount of time in developing a proposal for the use of Stanford's BALLOTS system within the University of California. Detailed costing was incorporated into this proposal. Unfortunately, despite enthusiastic response by the technical services staff and positive reactions from Library Council, the University shelved the proposal, due to lack of funds.

D. UC Union List of Serials

Some discussion took place between the Systems Office and ULAP regarding use of the key word software for production of an interim UCULS. Again, because of shifting circumstances in ULAP, talks were deferred. The topic is expected to come up for discussion again in 1975-75. In May of 1975, Berkeley delivered its (then 150,000 record) file to the ULAP UCULS project.

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COLUMBIA UNIVERSITY LIBRARIES

SYSTEMS DEVELOPMENT SECTION

INVENTORY OF COMPUTER BASED AND SYSTEMS ORIENTED PROJECTS

Current Projects:

a. 1966-present: Circulation. A computer-based circulation system has been designed, programmed, and tested for several environments with varying work loads. Implementation of the system has been scheduled in several phases. Phase I calls for a batch-oriented system, producing master circulation lists daily, and recall and overdue notices several times per week. Phase II provides source data collection procedures, replacing keying operations.

Status: Phase II: Fully operational in Central Circulation (file size 75,000 records, daily transaction volume of 2,500) and Burgess-Carpenter Library (file size 30,000 records, daily transaction volume of 1,000). The system is in the process of being tuned and statistical modules are being added. Programs are written in PL/I, for IBM 360.

b. 1966-present: Union List of Serials. A project to create union lists of serials for various subject areas using the computer primarily for re-formatting and listing purposes. Conceived as the first phase of an integrated serials system which eventually will include the functions of ordering, check-in, cataloging, and binding.

Status: Union List of Serials in the Health Sciences Library and the Science and Engineering Information Center (6th edition, October 1975) contains approximately 10,000 titles. Union List of Serials for the Social Science Divisions (Law, International Law, International Affairs, Journalism, Business, East Asian, Social Work, Psychology and Urban Planning titles from Avery Library). 2nd edition, January 1975 contains approximately 10,000 titles.

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The files have been in a MARC compatible format since July 1970. Programs are written in PL/I, for IBM 360.

c. 1967-present: Reserve Book Processing. Phase I: a computer-based reserve system has been designed, programmed, and tested. The system is batch oriented for the record creation, file management and book inventory aspects of reserve processing, and on-line for data input. Phase II: on-line circulation activities are being studied for possible integration with the basic processing system. Phase III: integration of the basic system with a master cataloging system being studied.

Status: Phase I: Fully operational. The system is in College Library (file size 23,000 records) and Business Library (file size 7,000 records). Programs are written in COBOL F for IBM 360; region size is approximately 180k. Phases II and III: study and design in progress. No definite implementation schedule established.

d. 1968-present: Acquisitions Project. A systematic analysis of acquisitions activities has been done. Specifications for a total integrated acquisitions system have been developed and documented.

Status: Phase I, which includes control of encoding data, printing orders, preparing and writing checks, creating and maintaining a comprehensive fiscal file covering all library accounts, and preparing input for the University Controller files, has been programmed and fully implemented. Phase II, which includes process control for materials, has been operational since July 1971. Programs are written in PL/1, Version 5 for IBM 360.

e. 1968-present: Integrated Technical Processing System. A systems study of acquisitions and cataloging has been done. Emphasis was placed on (1) developing a generalized system design which will have applicability to other institutions, and (2) coordinating development and design work with other large research libraries engaged in similar work.

Status: Description and analysis of monograph acquisitions and cataloging procedures completed; total system specifications have been developed. The role of Columbia in cooperative development within the Research Libraries Group is being investigated.

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f. 1974-present: Bibliographic Projects. A number of bibliographic and indexing projects to increase control of fugitive material are being investigated.

Status: The Computer and Human-Assisted Organization of a Technical Information Center (CHAOTIC) package from the National Bureau of Standards is being installed by the Columbia University Center for Computing Activities. The ERIC programs are being investigated as well as other MARC-based indexing systems. Data from the China Documentation Center is being used to debug and shake down the CHAOTIC programs. Investigation of further applications for the control of uncataloged ephemera collections is in progress.

Past Projects:

a. 1961-1966: Columbia-Harvard-Yale Medical Computerization Project. A cooperative effort to develop automated techniques for acquisitions and cataloging. A final system was conceived of as an on-line, wire-linked information network. Partially supported by a grant from the National Science Foundation.
Status: Discontinued.

b. 1963: Simulation of Columbia University Library (SCUL). A computer simulation model was developed to research library activities. Partially supported by a grant from the Council on Library Resources.
Status: Preliminary study completed; project discontinued for lack of funds.

c. 1964-1965: Library Systems Study. A study of the Library's total operations was conducted by a team made up of library staff and IBM researchers. A total processing system was designed making extensive use of computers in an on-line environment.
Status: Conceptual design completed.

d. 1964-1970: Parkinson Information Center. A project designed to establish and operate a computer-based information center to collect, organize, and disseminate information in the subject area of Parkinsonism and related disorders. Work done under contract from the National Institute of Neurological Diseases and Blindness.

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Status: Center disbanded as of July 1, 1970. Programs and machine readable data bases (30,000+ records) turned over to NINDB.

e. 1965-1971: Upper Mantle Project (IGY). A project to design and operate an information center to collect, organize, and disseminate on a world-wide basis data of the Upper Mantle Project. Computer used to create book form catalogs. Partially supported by funds from the National Science Foundation.
Status: Project ran in production mode for input and proof processing and book catalog production. Programs are in PL/1 Version 5 for the IBM 360. The UM Data Center is no longer operational.

f. 1968-1970: Collaborative Library Systems Development Project. Research in the area of computers and generalized library systems undertaken in cooperation with Stanford and Chicago. Objectives: (1) facilitate prompt exchange of working data; (2) explore the feasibility of developing general computer-based systems; (3) establish and maintain liaison with key national agencies. Partially supported by a grant from the National Science Foundation.
Status: Project completed. Proceedings of final conference published as "Collaborative Library Systems Development," edited by Paul J. Fasana and Allen Veaner, Cambridge, MIT Press, 1971.

g. 1968-1973: Columbia University Libraries User Survey. A number of user surveys have been designed to sample utilization of the Libraries in terms of types of users, types of materials used, types of services requested, space utilization, book storage, processing costs, etc.
Status: Final report on first two years of sampling prepared.

h. 1968-1974: Cataloging Project. A systematic analysis of cataloging activities has been accomplished. Requirements for an automated cataloging system have been developed.
Status: Experimental use of MARC data initiated. Utility programs and interface with the acquisitions system have been prepared. Specifications for encoding, proofreading and updating bibliographic records, and a catalog card production system have been developed. Prototype book catalog programs and on-line editing have been developed and experimented with.

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A catalog card printing module utilizing on-line WYLBUR editin has been programmed. Programs are written in SPITBOL, for 19 360. This project has been suspended awaiting cooperative cataloging system development within the Research Libraries Group.

i. 1969-1973: Special Collections. Techniques and programs developed to produce bookform catalogs and indexes were experimentally used for several special collections. On-line text editing using 2741 terminals, and CRT's (WYLBUR system) were utilized.
Status: Hart Crane Correspondence analyzed and encoded; an experimental sample of the Oral History Collection has been analyzed, encoded and printed in book form. The Gumby Collection of Negroiana was partially indexed and encoded.

j. 1970-1973: User Services. Identification and analysis of various library users undertaken. Object of the project was to identify specialized needs of different user groups and to experiment with providing them with innovative services.
Status: Working in conjunction with the Illinois Institute of Technology Research Institute (IITRI), an experimental SDI service was established for a limited number of scientific users. Searches and a current awareness service have also been provided for groups of users utilizing the NERAC (New England Research Application Center) data bases. Access to the SUNY Bio-Medical Communications network is available through the Health Sciences Library.

k. 1972-1973: Collection Policy Statements. An abbreviated version of the LC class schedules, enriched by subject descriptors, was used as an outline against which the current scope and level of collection policy for each unit in the C. U. Libraries was recorded. The compilation is a first step towards rationalizing collection policies between libraries, and as a general reference tool for Columbia Library users. Listings can be printed by descriptor, by class, and by location.
Status: 1st edition listed and distributed internally. (Data current up to 12/72.)

The Columbia University Center for Computing Activities operates an IBM 360/91-75, running under OS MVT 21.0, ASP 2.6.

PURDUE UNIVERSITY

LIBRARIES AND AUDIO-VISUAL CENTER

COST ALLOCATION STUDY

RDU 76-02

Submitted to the Office of the Provost
Purdue University

By

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May 1976

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METHODOLOGY

Cost accounting was the basic technique used to determine and analyze costs in this study. Standard cost accounting procedures, which were designed for profit-making institutions, were modified to accommodate accounting procedures used at Purdue. The works of Leimkuhler and Cooper[3], Shillinglaw[4], Gross[5], and Anthony, Deardon and Vancil[6], were used as general reference works in the field.

The framework for measuring costs in the Libraries and Audio-Visual Center was based on functional units rather than organizational structure. The system was divided into responsibility centers and cost centers. A responsibility center is defined as a functional unit consisting of a variety of activities with a broad objective. The Libraries and Audio-Visual Center consists of two responsibility centers: materials acquisitions and processing, and client services. A cost center is defined as a unit which is relatively homogeneous but is directed toward defined activity. Figure 1 illustrates the relationship of responsibility and cost centers. Client related activities, such as reference, circulation, etc., take place in defined units which are the school and departmental libraries and the audio-visual service centers. These units are referred to as service locations in this study. Figure 2 illustrates the relationship of functional activities and the service locations.

Data collection difficulties precluded analysis of costs by desired cost center. For the purposes of this study, the Libraries and Audio-Visual Center were considered separate units. Selection, purchase, and

receipt of library materials were grouped into a single cost center for acquisitions with a second center for cataloging and related activities. Identification of separate warehouse and maintenance costs was not possible. Library client services and audio-visual services could not be broken down into cost centers. The illustrations (Figures 1 and 2) are included in this report to provide a model for future studies.

In measuring costs for each functional unit, both direct and indirect costs were determined. Direct costs, that is those costs which are incurred as part of a specific activity include: salaries and wages, fringe benefits, equipment, materials, assignable supplies and expense, space, and utilities. Indirect costs, common to two or more cost centers, include; administration, fiscal office, personnel office, systems development unit, research development unit, mail delivery, xerox, telephone, travel, unassignable supplies and expense, and miscellaneous. Indirect costs have been allocated on the basis of professional salaries and wages for each functional unit.

Sources of Data

Salaries, wages, fringe benefits, and other expenses were based on budgeted data as actual expense data is not readily available. Equipment, materials, and assignable supplies and expense were based on actual expenditures. Assignable supplies and expense includes; order forms used by the Acquisitions Department, catalog card stock, and keysort circulation forms used by the Krannert and General Libraries. Equipment and supplies given to the libraries by the teaching departments

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were not included in this study. The cost for space, utilities, and maintenance is based on estimates supplied by Physical Plant. The floor space assigned to Libraries and Audio-Visual Center activities was determined through computer printouts provided by Schedules and Space.

Staff Activities

Libraries' staff working in service locations divide their time among a number of activities. In addition to the provision of direct client services, school and departmental librarians perform duties which are functionally related to materials acquisitions, such as book and serial selection, pre-order searching, order, and processing to make material readily available for users. In order to determine the proportion of salaries and wages that should be allocated to the various activities, professional staff were asked to estimate the time they and their support staff spend on specified activities. These proportions were applied to salaries, wages, and fringe benefits to determing the direct labor cost associated with the activities.

Library representatives and departmental library committee members, who are members of the teaching faculty, spend varying amounts of time on behalf of the library. The cost of their time was not included in this study because data concerning time spent were not readily available. Data contained in the Activity and Assignment Report issued by OAS were examined, but were found to be unsuitable because reporting of time spent on library committees by faculty members was incomplete, inconsistent, or nor uniquely identified. For example, some departments

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reported assignment of library committee members, other reported only the library representatives' time, while others reported no library activity. Time spent by library representatives and committee members represent a significant cost to the University and a substantial portion of materials selection cost. University administration costs also have been excluded from this study because data were not readily available.

Libraries Allocation Techniques

The primary objectives of this study were to determine the cost of providing library and audio-visual materials and services and to allocate these costs to user groups. There are three basic approaches to allocation:

1) intended use, which is based on the idea that materials and services are provided with the intent that they be used by specific groups;
2) actual use, which is based on the measured usage of materials and services by defined user groups; and
3) the indirect cost approach, which views library and audio-visual services as an indirect support function with costs to be allocated according to faculty salaries and wages.

The National Center for Higher Education Management Systems recommends that library costs be allocated to programs according to compensation " . . . adjusted by a faculty activity analysis," and audio-visual services be allocated according to actual usage.(7)

In this study, two allocations methods were applied to the cost data and compared. The first approach is a combination of actual use and intended use and is based on the idea that materials are purchased at the request of specific departments which intend to use them. Acquisitions and processing costs can be allocated on this intended use basis however, it is not possible to allocate client services on this basis because they are offered to all groups. Client services, therefore, are allocated on an actual use basis.

The attribution of client service costs can be approached in two ways. The first method sums costs for all service locations and apportions the cost on the basis of actual usage of the whole system. The second method takes into account the variances in cost and usage among the different service locations. The cost of service provision in smaller libraries with one or two staff will not be the same as the operating cost of larger service locations with more staff. In addition usage of each library location is not consistent among the teaching departments. Thus, it is necessary to divide the cost of service at each location according to the usage of that location and sum the usage cost for each department.

The second overall allocation method is based on actual usage of the total system. The underlying theory is that library services are offered to the total community and the groups which use the library should bear the burden in proportion to their actual usage of materials.

Usage Data

The allocation of costs according to actual usage necessitates having accurate data concerning library and audio-visual users. The most convenient library statistic to collect is recorded circulation. Librarians have raised two main objections to the use of this statistic as an indicator of usage:

1) in-house use and reserve book use are not taken into account; and
2) other services, such as reference are not segregated.

A study by McGrath at Louisiana State shows high positive correlation between the subjects of books used inside the library and books which are circulated outside. McGrath concluded " . . . that circulation totals, when grouped into self delineating spans, can be reliable indicators of the subjects being used within as well as out of the library."(8)

Densmore and Bourne(9) in their cost study at Stanford indicated that over-the-counter circulation data appear to provide a good estimate of the use of library services.

Purdue does not collect data on the use of library services by user group; therefore, a special study of recorded circulation was undertaken to provide this data. A copy of the Circulation Study is appended to this report.

A similar study of Audio-Visual Center usage was undertaken for the period February 1 through April 30, 1975. The results of the study are presented in Appendix Tables A-1, A-2, and A-3 and indicate equipment and material checked out of the center and substations and material used within the center.

Research Vs. Instructional Uses

A lower priority objective of this study was to allocate costs by end use, i.e., instruction, research, and public service. The last category, public service, is easiest to estimate because the circulation study includes usage by persons outside Purdue through direct charges and interlibrary loans.

The Cost Study Advisory Committee discussed the problem of research and instructional uses of library and audio-visual services at length. There are no readily available or widely accepted methods of allocating library costs according to end use. The Advisory Committee considered and rejected three methods:

1) assign research usage according to time spent as indicated on the Activity and Assignment Report;
2) allocate research usage among graduate students and faculty according to the Payroll Report; and
3) survey library users.

The Activity and Assignment Report and Payroll Report methods were rejected because neither report accurately reflects the amount of research being done which requires use of the Libraries and Audio-Visual Center. A survey of library users was considered unsatisfactory because of the time and expense involved. In addition, the committee concluded that the results of such a survey would not be sufficiently accurate.

The allocation of costs according to end use is important for the following reasons:

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1) the University needs to have reasonably accurate data in order to determine costs for its instructional programs;

2) the Office of Contract Administration, which is responsible for the Indirect Cost Study, needs data to determine the portion of cost which should be attributed to sponsored research and paid by the contracting agency; and

3) data on how library and audio-visual materials and services are used provide planning information for the Libraries and Audio-Visual Center Administration.

Time and funds available for this study precluded an in-depth examination of the issues involved in various end uses of the Libraries and Audio-Visual Center; therefore, it is recommended that these issues be studied further (see page 21).

Audio-Visual Costs

The Audio-Visual Center engages in a variety of activities in connection with the provision of services and material to is clientele. In addition to the selection, acquisition, processing, and loan of material, the center provides equipment which must be inspected and maintained and trained personnel who set up equipment configurations as well as operate the equipment.

Audio-Visual Center personnel were not asked to supply data regarding the distribution of hours spent performing their various jobs; therefore, it was not possible to gather cost data for specific functions. The total operating cost of the Audio-Visual Center was allocated to academic departments on the basis of usage data.

The direct and indirect cost items for the Audio-Visual Center are similar to those for the Libraries with the addition of depreciation for major equipment items, such as projectors, video tape playback units, tape cassette recorders, etc. Depreciation represents a major cost for the center because the equipment is essential to operations and has a limited life. Depreciation estimates were developed in a study undertaken by the Research Development Unit in 1975.(10) These estimates cover only major pieces of equipment and do not include films and other material which also have limited useful lives.

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* * *

SYSTEMS OFFICE

Annual Report, 1976-1977

Submitted to
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University Librarian

David L. Weisbrod
Head, Systems Office
Yale University Library
New Haven, Connecticut

1. SUMMARY HIGHLIGHTS.

All of our production-status systems continued to function without interruption during the year (see MATPS and LBS, below), although increased running costs for MATPS at Yale Computer Center (YCC) became a severe worry during the spring. An inventory (or "census") of selected in-house MATPS processing statuses in November yielded interesting results.

The Research Libraries Group Serials Decision System development project was virtually complete by June 30.

Under the aegis of the Research Libraries Group, software from Blackwell North America for maintaining a file of OCLC archive records was acquired, installed, and put into operation (see ROAMS, below).

We changed our name from Development Department to Systems Office.

* * *

2. ACTIVITIES AND EVENTS.

2.1. Projects of Significant or Indefinite Duration.

During 1976-77 the Systems Office was involved in five projects or work efforts of significant or indefinite duration. Each of these entailed one or both of the following types of activity: (1) planning and/or development, (2) production. Table 1 lists the projects, identifies the Project Leader (who served as author of the subsection that follows), and characterizes the type(s) of activity during 1976-77.

		TYPE OF ACTIVITY	
		Planning and/or Develop't	Product'n
P	1. MATPS (Suzanna Lengyel)	X	X
R	2. NELINET/OCLC Liaison (Dale Flecker)	X	X
O	3. RLG		
J	3.1. SDS (Sandra E. Stone)	X	
E	3.2. ROAMS (Dale Flecker)	X	X
C	3.3. STAC [no formal project leader]	X	
T	4. Circulation Control (Dale Flecker)	X	
	5. XBS (Suzanna Lengyel)		X

Table 1. Projects of significant or indefinite duration.

2.1.1. Machine Aided Technical Processing System (MATPS).

During the past year, the activities of MATPS have continued in the same areas, and have processed and maintained files of similar size, as in the years past. Though a major change in the operating system of the Yale Computer Center has forced our staff to spend a large amount of time and effort on computer cost control, outwardly (i.e., from the point of view of the MATPS-users) not much has changed. MATPS has continued to produce the same major products as before (biweekly microfilm in-process list and order number list; daily supplements to both; vendor claims; fund accounting reports; regular and on-demand file analyses, etc.). 65,906 records have been added to the master file during the year (an increase of 0.6% compared to the number of records added in 1975-76). The size of the master file, i.e., the file of all records from time of order to 24 weeks past cataloging, is between 114,000 and 115,000 -- a slight drop from the 117,00 of a year ago. We have continued to use old programs and have written new ones to analyze the MATPS files. Besides the regular monthly reports, we have supplied 53 reports on demand, extracting information from the files by fund, vendor, status, requester, etc.

For the purpose of this report, I will divide the MATPS-related events of the past year into four categories: (a) events triggered by

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circumstances beyond our control, such as change of operating system, hardware, and schedule at the Yale Computer Center; (b) events related to our efforts to replace existing equipment; (c) efforts to "put our house in order;" and (d) efforts to improve the system, enlarge its scope, and enhance its products.

With regard to category (a):

In November, 1976, the Yale Computer Center finished installing a new operating system, MVS. Though the MATPS programs continued to run under this system without the need for major modifications, our computer costs increased dramatically. The effect of the change of operating system, magnified by an across the board increase in YCC charges of 10% (as of December 1, 1976), was to increase our computer bills for MATPS operations by 25%. Together with the YCC System Staff, we spent a great deal of time and effort to try to understand the relationship between the new operating system and some of the peculiar features of MATPS which had made the latter so vulnerable to cost increases. Within a few months, YCC was able to introduce certain modifications into the operating system which led to the reduction of the costs from the peak they reached in March, 1977, and lent some reproducibility and predictability to the individual jobs' costs. On our part, we have implemented numerous changes, none too successful, in an effort to bring costs down. At this moment, we are still working on a major experimental program modification to reduce operating costs -- changing the presently used "ISAM" file access method to the new "VSAM" method.

Another change, forced upon us by our outside environment, was the shifting of our biweekly file reorganization runs from Friday nights to Thursday nights, to accommodate the changed schedule of the Yale Computer Center. This change of our production cycle will increase our annual production costs, and has required a certain amount of reorganization.

With regard to category (b):

The data entry and data collection equipment, installed in Sterling Memorial Library in 1966, has been in continuous use since that time. The data collection equipment, the IBM 357 Data Collection System, requires frequent repair by IBM to "keep it going." Since IBM will not guarantee indefinitely the continued maintenance of this system, we must find a replacement for it. The replacement should at best give us increased capabilities, and, at least, the same service as the present system. After having done some market research, and studying some offers and demonstrations by IBM, we have not yet arrived at a solution. The completion of this project is one of our top priorities in the year 1977-78.

With respect to category (c):

Inaccurate location information has been accumulating in the MATPS files throughout all the years of the system's existence. This has resulted in an artificially inflated in-process file and in loss of the

file's credibility. The problem was well known for many years, but the obvious solution, a massive inventory of all in-process books, seemed an impossible undertaking. In November, 1976, a one week shut-down of the OCLC cataloging system freed the manpower in the SML Catalog Department to conduct a "census," i.e., a limited inventory of MATPS. In eleven selected locations, the staff re-processed every single book through the "357" data collection equipment, thereby updating the location and processing status information of these books. Subsequent analysis of the file revealed that some 12,000 records ("ghost" records) which had previously been shown in the in-process file as being in one of the inventoried locations, had not turned up in the "census." To avoid the need to search for 12,000 "ghosts," we extracted a subset of 400 records from this ghost file (every 30th record), which was then searched in the library title-by-title. 65.1% of these titles were found in the card catalog and thus were proved to be cataloged and shelved (i.e., not lost or stolen); 5.3% were overlooked in the "census" and later were found in their correct location; 4.3% were found in one of the un-inventoried locations; 3.6% were discarded as duplicates, transferred to a library outside of SML, etc.; 21.7% were not found.

The planning, preparation, and conduct of the "census" were the joint work of the SML technical services staff and the Systems Office. The analysis and searching of the "ghost" list was done by the Catalog Department.

As a direct result of the "census," the inventoried books had their location status correctly updated. The status of each "ghost" record was updated to a "ghost" status code, invented for this purpose. These records, though retained on the master file and displayed in the microfilm order number listing (ONL), are excluded from the microfilm in-process listing (IPL). To help avoid the accumulation of new "deadwood," the workflow in Technical Services was modified, some new processing statuses added, and some old ones re-defined. We are considering adding to the system the feature of in-house claiming. Books remaining in an in-house processing status beyond a pre-determined number of weeks would be claimed from the responsible department head just as outstanding orders are claimed from vendors.

During the year several program "bugs" were cleared up, some of which had been with us -- but had gone unnoticed -- since the beginning of the system.

In an effort to improve the efficiency of computerized claiming, we have improved the programs selecting orders for claiming from the vendor, by making them sensitive to the expected date of publication.

With respect to category (d):

The archive files of MATPS records, whose processing was completed between June 1972 and June 1976, were sorted into a single file and output on three reels of computer output microfilm (COM). Added to the existing four reels of microfilm covering the years 1966-1972, we now have a unique, extremely compact, heavily used

reference tool of all archive records of the last ten years.

Work has been in progress for several months on improved backup and recovery procedures aiming at (1) the assurance of safety and continuity of the MATPS computer files at a location different from the Yale Computer Center, to protect against a catastrophic loss; and (2) the use of an automatic recovery procedure from a computer crash or program crash which at present requires hours or days of work by a staff member thoroughly familiar with the system.

The MATPS User Handbook, document D-20, has been updated to reflect numerous system modifications.

The error messages and warnings issued by the daily MATPS programs have been simplified to facilitate their understanding and the subsequent error correction.

Plans have been discussed to satisfy a long-standing request of the Collection Development staff: the addition of subject codes to the master record. This would enable us to analyze the file by subject field (number of books ordered, number received, and amounts spent, by subject breakdown). At present, such analysis is feasible only after the book has been cataloged and the call number has been added to the master record.

MATPS is a single-library system in a multi-library environment. At present, the system can keep track of only those orders, records, books, and invoices which pass through SML. This criterion eliminates from participation in MATPS all YUL libraries which do their own acquisition and/or cataloging. The expansion of MATPS to libraries distant from SML would bring under common control a larger segment of YUL acquisitions, and would make MATPS statistics more meaningful for the entirety of YUL. We are aware of interest on the part of the Divinity Library to participate in MATPS, and are on the verge of beginning exploratory talks with the Medical Library in this respect. The direction of these plans may have important influence on our choice of new data collection equipment (mentioned under (b) above), by shifting our interest to systems with remote data entry possibilities.

Other MATPS miscellany:

We have had accepted for publication a paper entitled "The Machine Aided Technical Processing System in the Yale University Library" to be presented at a session on Library Automation and Networking at the American Society for Information Science (ASIS) 1977 Annual Meeting (see "Publications" in Section 3.2).

A study of MATPS acquisitions data was done for the Institute on Quantitative Measurement and Dynamic Library Science held at the School of Library Science, Simmons College. This study is expected to be published in the proceedings of the institute (see "Publications" in Section 3.2).

2.1.2. NELINET/OCLC Liaison.

While the majority of time spent performing liaison work between Yale University Library and the New England Library Information Network (NELINET), and through NELINET with the Ohio College Library Center (OCLC), concerns day-to-day problem handling and communications, there were three areas in which some new development work was done this year:

(1) Equipment procurement and installation. One additional OCLC 100 terminal and one additional General Electric Terminet 120 printer were obtained and installed. Three manual switches were also installed, each of which allows the shared use of a single printer by two OCLC terminals. At the end of the year configuration stands at three printers and eleven terminals, with six of the terminals having access to printers.

(2) Documentation of OCLC profiles. A "profile" specifies to the OCLC catalog card production programs, for a specific collection whose cataloging data are being input: (1) the kinds of catalog cards that are to be produced (author, title, subject, etc.); (2) the data elements which the cards are to contain, and their format; and (3) the ID's of the catalogs into which the cards are to be filed. The Yale profiles for catalog card production at OCLC had been implemented piecemeal over the last several years, and neither Yale nor NELINET nor OCLC had complete or organized documentation of the present state of those profiles (there are over 30 of them). With the aid of personnel from the Catalog Department, NELINET, and OCLC, complete documentation of the profiles was created this year, and arrangements for the maintenance of that documentation were made. These specifications will provide the basis for the "profiling" of Yale for the RLG system in the near future.

(3) Investigation and processing of OCLC archive tapes. Documentation as to the contents of the archive tapes and their precise relationsip to actions on the OCLC terminal is scanty at best. An investigation of the tapes was therefore undertaken jointly with the Catalog Department, and the information thus gained has been used both in setting up the RLG OCLC Archive Maintenance System (ROAMS. See Section 2.1.3.2, below), and in the decision to use the archive tapes as a substitute for filing OCLC-produced cards into the insurance shelf list. As a precautionary measure, a procedure was established to create back-up copies of the archive tapes as they were received. This practice was discontinued this spring with the advent of ROAMS. The original "master" tapes received from OCLC continue, however, to be sent to the library for storage in Beinecke.

2.1.3. Research Libraries Group (RLG).

The Systems Office participated in three major activities relating to RLG: (1) the RLG Serials Decision System development project, Sandra E. Stone, Project Leader; (2) the RLG OCLC Archive Maintenance System (ROAMS), which involved both development and operations work, Dale

Flecker, Project Leader; and (3) the Systems and Technology Applications Committee (STAC). Each of these activities is reported below.

2.1.3.1. RLG Serials Decision System (SDS).

The past year saw the completion of the development phase of the Research Libraries Group Serials Decision System (RLG SDS). System integration and testing were completed on April 15, and Mr. John Knapp, Vice President for Systems of RLG, was notified. Documentation of the system was completed during the months of May and June, 1977.

Unfortunately, the effort required for the development of this system exceeded our estimates. In last year's Annual Report, it was noted that the scheduled date of completion was July 31, 1976, but that the development was then one month behind schedule. It was hoped, at that time, that some of the lost time could be recovered. This was not to be.

During the spring and summer of 1976, the Serials Cancellation Procedures were reviewed, and interim procedures were instituted. The uncertainty occasioned by this review caused a delay in the development of the final RLG SDS system programs. In addition, the system design was modified to conform to actual practice. Because of these changes, actual system testing did not begin until November, 1976. The project schedule was revised at that time for a scheduled completion date of December 31, 1976.

A further delay in the completion of the RLG SDS occurred when the Yale Computer Center announced the impending switch to a new operating system (MVS). Key personnel in the Systems Office had to be temporarily taken off the RLG SDS project to evaluate the impact of the new operating system on existing production project software. Testing of the RLG SDS software could not resume until January, 1977.

The future of the RLG SDS is uncertain at this time. Although the system is completed and ready for operation, it is not known at this time if the projected cost of operating the system is justified by the volume of serials petitions currently passing through the Bibliographic Center, which is lower than the volume originally estimated. Until such time as the volume warrants, or unless other compelling reasons arise, the system will be put "on the shelf" on 1977 July 1.

2.1.3.2. RLG OCLC Archive Maintenance System (ROAMS).

With the decision last fall to use the data being acquired on OCLC Archive tapes by Harvard and Yale for the initial load of the RLG data base, an RLG/STAC subcommittee was formed to evaluate various systems for maintaining a master file of archive records. A system provided by Blackwell North America was eventually selected and purchased by RLG. Systems Office personnel helped with the installation of the BNA system at the Yale Computer Center, and performed most of the testing and

de-bugging of the package, as well as organizing, correcting, and completing the system documentation for RLG. Concurrently work was begun with the Catalog Department to decide how the system would be used at Yale, and then to design the procedures for that use. The first production run of the system was made at the end of April 1977, and approximately 17,000 records have been processed to date. The first draft of the system documentation is complete, and will be delivered to RLG shortly. The procedures for using the system are still under development, but it is expected that these will be completed and full production status should be achieved within the next several months.

2.1.3.3. RLG Systems and Technology Applications Committee (STAC).

Yale University Library has two representatives on STAC, Sandra E. Stone and David L. Weisbrod, both of the Systems Office. The activities of STAC are reported in its minutes, so no attempt is made here to summarize the year's work, other than tc mention that the Committee meets approximately monthly and that the major matters on which effort was spent were (1) the RLG Automated Bibliographic Control System and (2) OCLC archive tapes.

In addition to participating in the general work of the Committee, the following special assignments were taken: (1) Subcommittee on OCLC Archive Tapes -- Weisbrod, (2) site visits to Washington Library Network, University of Chicago, and New York Public Library -- Weisbrod, (3) Subcommittee on Pricing -- Weisbrod.

2.1.4. Circulation Control.

A project to investigate and possibly install a commercially available circulation control system at Yale was initiated this year. A preliminary outline of the steps necessary to evaluate, purchase, and install the system was prepared. The present manual circulation systems in use in the Sterling Memorial and Cross Campus Libraries were examined and documented in detail. In order to conduct a fair, orderly, and relevant comparison of the various systems available, an extensive list of the functions an "ideal" circulation system for Yale would provide was created and sent to four vendors. Replies from all four have been received and detailed discussions with three of the vendors concerning their system are currently underway. The evaluation phase of the project should be complete within the next one to two months.

2.1.5. Xerox Billing System (XBS).

The Xerox Billing System (XBS) continued to serve as the computerized tool for processing photocopying charges in the Yale Medical Library and in the Kline Science Library-Engineering Library complex.

During the past year, there was no need to revise the programs or

effect major changes in the procedures. Minor changes were required to adjust to the new operating system (MVS) installed in the Yale Computer Center.

The XBS programs continued to function smoothly. For the number of transactions processed and the cost of computer rental, see the table below.

Several times during the year, suggestions arose to utilize the XBS programs in other areas of YUL and the Medical Center, but these plans have remained in the discussion stage.

Some cost saving was achieved by the participating libraries (YML and KLS-EAS) by having the system's punched card input prepared by a new keypunching service which offers somewhat lower rates than the previous supplier.

NUMBER OF TRANSACTIONS

Customer	1976-77	1975-76
YML	31,382	27,520
KSL	28,609	31,870
EAS	13,235	13,545

COMPUTER RENTAL COSTS

Customer	1976-77	1975-76
YML	$164.00	$159.00
KSL-EAS	$174.00	$188.00

Table 2. XBS production figures, 1976-77.

2.2. Other Continuing Responsibilities.

Reported here are additional responsibilities of significant magnitude discharged within the Systems Office, but not of project status, i.e., not eligible for inclusion in Section 2.1.

2.2.1. Computer Center Operatons Committee

The University Library is represented on the Yale University Computer Center Operations Committee (CCOC), an advisory group convened by Deputy Provost for the Sciences, by David L. Weisbrod. The alternate representative is Sandra E. Stone. Weisbrod has served for the last year as Chairman of the CCOC Subcommittee on Systems (SOS). During the past year the CCOC has met monthly and the SOS weekly.

2.2.2. Committee on the Future of the Card Catalog.

The Systems Office is represented on the Yale University Library Committee on The Future of the Card Catalog by David L. Weisbrod.

2.2.3. Collecting Practices Project.

Occasional assistance has been given by Myra L. Carbonell to David Zinkin in the course of his preparation of a "Collecting Practices" document for the Yale University Library on behalf of the Associate Librarian for Collection Development, George H. Vrooman. In the course of this project Zinkin has used the following facilities of the Yale Computer Center: he used the on-line text editor to prepare the "raw" text of the document; he used the NSCRIPT "typing" program to produce a series of clean, formatted listings of the evolving text; he wrote (in the PL/I programming language) and used a selective extraction program to produce subsets of the full document for individual libraries or groups of libraries. Assistance continues to be provided to Zinkin's successor in the collecting practices project, John G. Williamson.

2.3. Miscellaneous Events.

2.3.1. Name Change.

In October, 1976, the name of our unit was changed from Development Department to Systems Office, in order to better reflect the nature of our work and to gain distinctiveness from the University Office of Development.

2.3.2. New Communications Terminals.

During the winter after a week's in-house testing and after a comparative cost investigation, the Systems Office purchased for its own use a Diablo 1620 typewriter terminal unit to replace the IBM 2741 unit we had been renting from YCC. The results of increased speed and reliability, and of improved print quality, we feel, have justified the expense.

* * *

3. PERSONNEL.

3.1. Roster.

As of 1977 June 30, the staff of the Systems Office comprised the following persons (listed by surname in alphabetical order). A brief indication is made of each individual's major activities during the year.

Myra L. Carbonell, Assistant Library Systems Analyst. Worker, MATPS, and on occasion, Acting Project Leader, MATPS.

Dale Flecker, Associate Libray Systems Analyst. Project Leader, Circulation Control. Yale University Library liaison person, NELINET/OCLC (and ex officio Project Leader). Project Leader, ROAMS. Worker, MATPS.

Suzanna Lengyel, Associate Library Systems Analyst. Project Leader, MATPS. Worker, RLG SDS. Project Leader, XBS.

Sandra E. Stone, Associate Library Systems Analyst. Project Leader, RLG SDS. Worker, MATPS.

David L. Weisbrod, Head, Systems Office. General supervisory responsibility.

Lillie Wilson, Secretary, Systems Office. General secretarial-, clerical-, and administrative assistant-type responsibilities.

3.2. Professional Activities and Publications.

The following non-credit courses offered by YCC were taken by Systems Office staff: VSAM and Access Methods Services (Carbonell, Flecker, Stone); TSO-QED Text Editor (Carbonell, Weisbrod). Carbonell and Stone participate regularly and actively in the PL/1 Users' Group that has been established among users of that programming language at YCC. Three papers were accepted for publication (see Carbonell, Lengyel, and Weisbrod, below). Other activities are listed by individual, following.

Carbonell. Attended the two-part Institute on Statistical Quantitative Measurement and Dynamic Library Service at the School of Library Science, Simmons College, Boston, Massachusetts. Prepared a paper "Study of the Acquisition Profile for the Yale University Library System" for the second two-day session. The sponsors of the institute hope to publish a Proceedings, which will include this paper.

Flecker. Member, American Society for Information Science (ASIS), American Library Association (ALA). Attended ASIS 1977 Annual Meeting (October, San Francisco) and ALA 1977 Annual Meeting (June, Detroit). Working toward MALS degree at University of Michigan.

Lengyel. Member, Special Libraries Association (SLA). Author, "The Machine Aided Technical Processing System in the Yale University Library," accepted for presentation at the 1977 ASIS Annual Meeting (October, Chicago) and for publication in the Proceedings.

Stone. Member, Association for Computing Machinery (ACM), Association of Computer Programmers and Analyst (ACPA), American Association for the Advancement of Science (AAAS). Member, Nominating Committee, ACM New Haven Area Chapter.

Weisbrod. Member, ACM, ALA, ASIS. Participant in YUL staff development program, Role of the Supervisor (February). Presented the paper "NUC Reporting and MARC Redistribution: Their Functional Confluence and Its Implications for a Redefinition of the MARC Format," at the ALA 1976 Annual Meeting (July, Chicago). An enlarged version of this paper has been accepted for publication in the Journal of Library Automation (1977 September issue). Attended various professional meetings. Member, ALA ISAD MARC Users Discussion Group (MUDG) Nominating Committee.

* * *

UNIVERSITY OF NEBRASKA
LINCOLN

COST OF ENGINEERING LIBRARY CARD CATALOG CREATION. DERIVATION OF COSTS FOR RETROSPECTIVE CONVERSIONS OF CATALOG RECORDS USING OCLC INPUT METHODS

By

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and
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November, 1976

Planning and Research Office
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PR76-12

Introduction

This report examines costs for production of a card catalog for the Engineering Library (EL) at the University of Nebraska-Lincoln using the online input and card production facilities of the Ohio College Library Center (OCLC). No catalog existed in EL prior to the beginning of this project. While it is of interest to know the costs for EL catalog production in anticipation of a similar project that must occur for other branch libraries, there was a higher motive for the study. We observed that the EL project closely resembles processes that would occur for the conversion of any portion of the catalog into machine-readable form. Consequently, the EL conversion presented us with the opportunity to collect data that would allow us to predict with a greater degree of accuracy the costs for a complete machine-readable catalog using OCLC as the input vehicle.

In the sections that follow operations are summarized, cost elements are identified, and the cost data collected are processed into unit costs and projected total costs for catalog conversion projects.

Methods and Data

Figure 1 outlines general conversion operations required to create the EL catalog. Questions regarding detailed operations should be addressed to the authors or to the Administrative Cataloger. Times and costs for indicated operational parameters are summarized in Tables 1-6. Data were collected beginning on the starting date of the project, June 1, 1976. Since salaries increased on July 1, 1976, and personnel were learning new routines, data is presented separately for June 1 - July 2. As not all titles entering the system between June 1 and July 2 had completely cleared the system on July 2, it was not possible to isolate the first month's data for possible exclusion. Costs calculated using July 5 - END data and June 1 - END data differ little. Data collection for new titles entering the system continued until October 1, 1976. All titles that entered the system before October 1 were followed to completion so data is complete for all titles. Time data for each operation was recorded on standard forms by each worker involved. Time data are processed in Tables 2-5 into cost; fringe benefits are added. Lost time factors are introduced in Table 7. Cost per title for both the EL catalog and for hypothetical retrospective conversions are given in Tables 7 and 8. Definitions and explanatory notes are included in Appendices.

Figure 1. General Processes for EL Catalog Conversion

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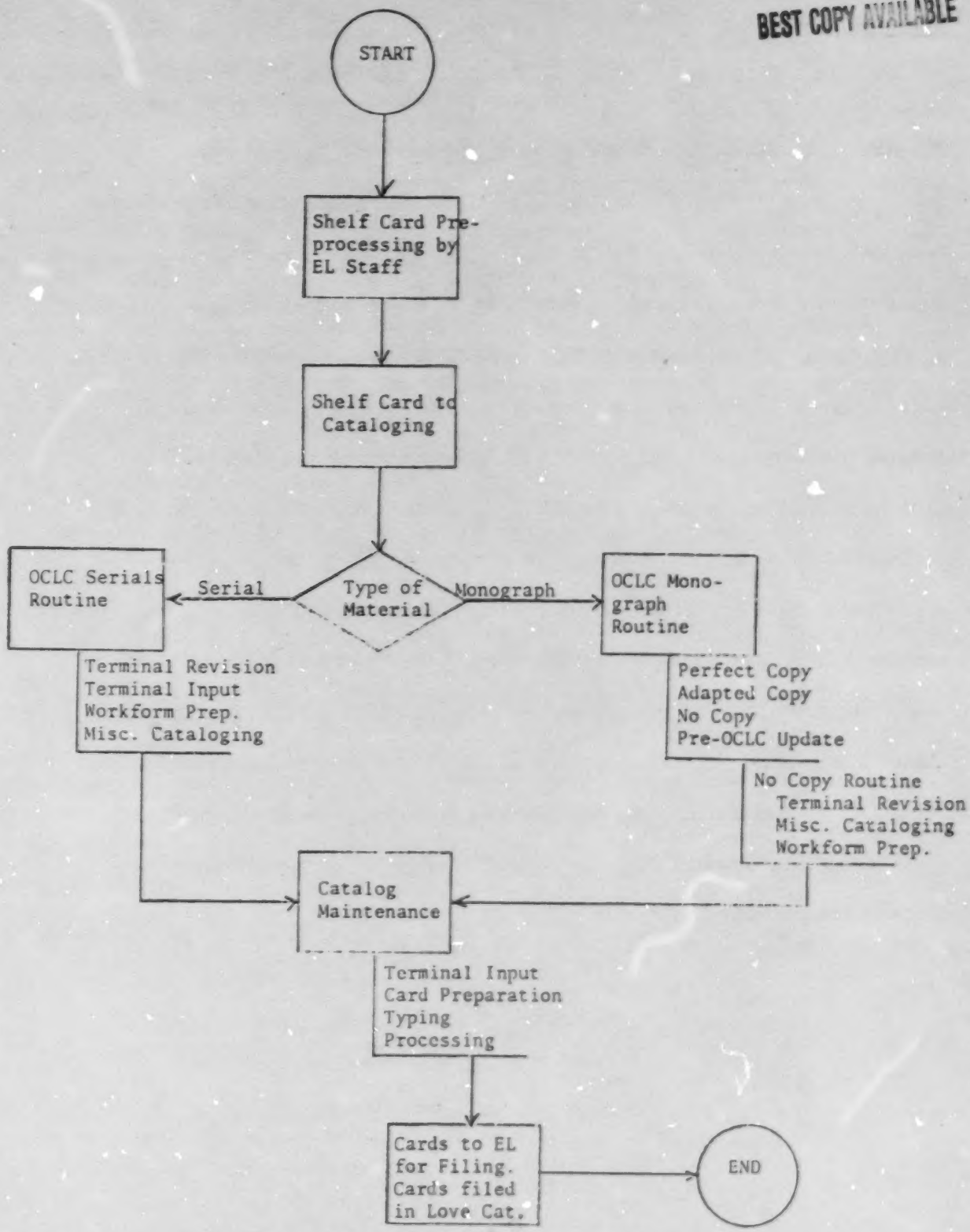

Table 1. Summary of OCLC Costs

Monographs	Number	FTU Charge	Card Costs	Total Costs
Perfect Copy				
Titles Total	2,406	$ 4,715.76	$ 1,032.17	$ 5,747.93
June 1-July 2	593	1,162.28	254.40	1,416.68
July 6-to end	1,813	3,553.48	777.77	4,331.25
Duplicates Total	603	---	258.69	258.69
June 1-July 2	143	---	61.35	61.35
July 6 to end	460	---	197.34	197.34
Adapted Copy				
Titles Total	112	219.52	48.05	267.57
June 1-July 2	93	182.28	39.90	222.18
July 6-to end	19	37.24	8.15	45.39
Duplicates Total	37	---	15.87	15.87
June 1-July 2	32	---	13.72	13.72
July 6-to end	5	---	2.15	2.15
Revised Copy				
Titles	293	---	125.70	125.70
June 1-July 2	1	---	.43	.43
July 6-to end	292	---	125.27	125.27
Titles in System Total	18	35.28	7.72	43.00
June 1-July 2	1	1.96	.43	2.39
July 6-to end	17	33.32	7.29	40.61
Pre OCLC Total Titles	73	143.08	---	143.08
June 1-July 2	0	0	---	0
June 6-to end	73	143.08	---	143.08
Total of Monographs	3,542	5,113.64	1,488.20	6,601.84
June 1-July 2	863	1,346.52	370.23	1,716.75
July 6-to end	2,679	3,767.12	1,117.97	4,885.09
Serials				
Titles	277	542.92	118.83	661.75
June 1-July 2	36	70.56	15.44	86.00
July 2-to end	241	472.36	103.39	575.75

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Table 2. Library of Congress Monographs - OCLC Cataloging Copy Routine - Personnel Costs

Employee and Hourly Rate $	Perfect Copy Found: Unique EL Titles	Perfect Copy Found: EL Titles Plus Dup.	Adapted Copy: Unique EL Titles	Adapted Copy: EL Titles Plus Dup.	No Copy: Unique EL Titles	No Copy: EL Titles Plus Dup.	Pre-OCLC Update Titles	Total OCLC Cat. Time	Direct Personnel Cost	Personnel Plus Fringe Benefits
June 1 - July 2										
NP-1 (2.8961)	595	736	93	123	64	64		78h 10m	$226.38	$260.34
July 6 - Oct. 1										
NP-1 (3.1009)	565	689	13	18	62	62		66h 40m	206.73	237.74
NP-2 (3.6822)	695	862	6	6	83	85	8	81h 55m	301.64	346.89
NP-3 (5.2030)	553	722	-	-	88	92	65	74h	237.02	272.57
July 6 - Oct.1 Subtotal	1813	2273	19	24	233	239	73	222h 35m	$745.39	$857.20
Total	2406	3009	112	149	297	303	73	300h 45m	$971.77	$1117.54

Notes

a. NP is non-professional. Fringe benefits are calculated by University standard of 15 %.

b. h = hours; m = minutes

Table 3. Library of Congress Monographs - No Copy Routine - Personnel Costs

Employee and Hourly Rate $	Revision Time on Terminal					Misc. Cataloging			Workform Preparation		
	Titles	Titles in System Since First Search	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes
June 1 - July 2											
P-1 (5.0480)	1	1	10m	$ .84	$ .96	5h	$ 25.24	$28.77			
P-2 (4.6634)						9h 30m	44.30	50.50			
NP-1 (2.8961)						48h 30m	140.46	161.53	17h	$ 49.23	$ 56.61
July 6 - Oct. 22											
P-1 (5.5288)	250	15	37h 45m	208.72	237.94	8h 45m	48.38	55.15			
NP-1 (3.1009)						36h 30m	113.18	130.16	47h	145.74	167.60
NP-2 (3.6822)						28h	103.10	118.57	34h	125.19	143.97
P-2 (4.8076)						9h	43.27	49.33			
NP-3 (3.2030)						10h 15m	32.83	37.75	43h 45m	140.13	161.15
P-3 (5.0480)									6h 30m	32.81	37.40
Oct. 25 - End											
P-1 (5.0480)	(42)	(2)	(7h)	38.70	44.12	15h 5m	83.39	95.13	15m	1.38	1.57
NP-2 (3.6822)						2h	7.36	8.46	2h	7.36	8.46
July 6 - End Subtotal	292	17	44h 35m	$247.42	$282.06	109h 35m	$431.51	$494.55	133h 30m	$452.61	$520.15
Total	293	18	44h 45m	$248.26	$283.02	172h 35m	$641.51	$735.35	150h 30m	$501.84	$576.76

( ) = estimated

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Table 4. Serials - Personnel Costs

Employee and Hourly Rate $	Revision Time on Terminal				Workform Preparation			Terminal Input			Miscellaneous Cataloging		
	Titles	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes
June 14 - July 2													
P-4 (5.9394)	6	1h	$ 5.94	$ 6.77				30m	$ 2.97	$ 3.39	30m	$ 2.97	$ 3.39
NP-4 (4.0312)	30	2h 50m	11.42	13.13	30m	$ 2.02	$ 2.32	2h	8.06	9.27			
NP-5 (2.6130)					1h 30m	3.92	4.51	4h 35m	11.97	13.77			
July 6 - Oct. 8													
P-4 (6.4903)	96	12h 50m	83.64	95.35							10h 45m	69.77	79.54
NP-4 (4.2302)	145	12h 28m	52.73	60.64	2h 20m	9.87	11.35	10h 5m	42.64	49.05			
NP-6 (2.6019)					1h 45m	4.55	5.23	20h 30m	53.33	61.33	2h 30m	6.50	7.48
July 6 - End Subtotal	241	25h 18m	$136.37	$155.99	4h 5m	$14.47	$16.58	31h 35m	$95.98	$110.38	13h 15m	$76.27	$87.02
Total	277	29h 8m	$153.73	$175.89	6h 5m	$20.36	$23.41	37h 40m	$118.98	$136.81	13h 45m	$79.24	$90.41

Note: P = Professional; Professional fringe benefits are calculated by University standard of 14%.

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Table 5. Catalog Maintenance - Personnel Costs

Employee and Hourly Rate $	Terminal Input			Card Preparation			Typing Time			Processing Time			
	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes	True Physical Volumes	Hours	Direct Cost	Direct + Fringes
June 16 - July 2													
NP-7 (2.4870)										75	5h	$ 12.44	$ 14.31
NP-8 (2.4870)										310	8h 40m	21.56	24.79
S-1 (2.20)											7h 30m	16.50	16.50
July 5 - Oct. 22													
NP-9 (2.8028)							1h 25m	$ 3.97	$ 4.57				
NP-10 (3.1110)							1h 10m	3.60	4.14				
NP-8 (2.7658)										3,350	51h 35m	142.67	164.07
S-1 (2.20)										221	20h 30m	45.10	45.10
S-2 (2.20)											25h 5m	55.18	55.18
NP-11 (2.6019)										1,319	53h 45m	139.85	160.83
S-3 (2.20)											4h 15m	9.35	9.35
S-4 (2.20)											2h 15m	4.95	4.95
NP-12 (3.0700)	16h	$ 49.12	$ 56.49										
NP-13 (2.6019)	41h 25m	107.76	123.42	1h 20m	$ 3.47	$ 3.99							
NP-14 (2.6019)	4h	10.41	11.97	23h 30m	61.14	70.31							
S-5 (2.20)				9h	19.80	19.80							
Oct. 25 - Nov. 5													
S-5 (2.20)				25h	55.00	55.00							
Balance of Terminal Input	(9h)	23.41	26.92										

( ) = estimated

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Table 5. Catalog Maintenance - Personnel Costs (continued)

	Terminal Input			Card Preparation			Typing Time			Processing Time			
	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes	Hours	Direct Cost	Direct + Fringes	True Physical Volumes	Hours	Direct Cost	Direct + Fringes
July 5 - End Subtotal		$190.70	$218.80		$139.41	$149.10		$7.57	$8.71	4,890		$397.10	$439.48
Total		$190.70	$218.80		$139.41	$149.10		$7.57	$8.71	5,275		$447.60	$495.08

Table 6. Direct Cost Summary for Engineering Library Catalog Including Card Production for Duplicates in Other UN-L Locations

	June 1 - July 2[c]		July 5 - End[f]	
	Monographs	Serials	Monographs	Serials
Personnel				
Misc. Cataloging[d]	$ 240.80	$ 3.39	$ 494.55	$ 87.02
Workform Prep.[d]	56.61	6.83	520.15	16.58
Terminal Input[d]	-	26.43	218.80	110.38
OCLC Cataloging[d]	260.34	-	857.20	-
OCLC Revision[d]	0.96	19.90	282.06	155.99
Subtotal-Cataloging	$ 558.71	$ 56.55	$2,372.76	$ 369.97
Catalog Maintenance				
Supervision	$ 6.83		$ 34.13	
Card Prep/Typing	-		157.81	
Filing[b]	126.84		412.04	
Filing Revision[b]	103.19		335.18	
Processing[a]	55.60		509.98	
Subtotal-Cat. Maint.	$292.46		$1,449.14	
Subtotal-Personnel	$907.72		$4,191.87	
OCLC Costs				
FTU	$1,346.52	$ 70.56	$3,767.12	$ 472.36
Cards	$385.67		$1,221.36	
Archival Tapes	13.10		29.44	
Prorated Terminal[c]	66.53		216.08	
Subtotal-OCLC	$1,882.38		$5,706.36	
Supplies				
Labels	-		$6.50	
Workforms/CSI	$1.90		5.68	
Subtotal-Supplies	$1.90		$12.18	

Table 6. Direct Cost Summary for Engineering Library Catalog Including Card Production for Duplicates in Other UN-L Locations (continued)

a. 750 volumes remained unprocessed at the end of the data collection period. Table 5 costs were upgraded by $.094/vol., the calculated per volume processing labor cost.

b. See Appendix B.

c. A 5-year lifetime at 10,000 titles per year per terminal was assumed for a $3,700 terminal purchase. Prorated per title cost is $.074.

d. Production supervision is included.

e. June 1 - July 2 monograph titles = 863; serial titles = 36

f. July 5 - End monograph titles = 2679; serial titles = 241

Table 7. Total Cost of EL Catalog Production-Direct and Indirect Costs

3,819 Titles completed = 19.8% Complete
19,280 Total Titles

Cost Factor	June 1 - July 2	July 6 - end of Sample	July 6 - Lost Time Corrections[a]	Direct Costs. Total for full Period	June 1 - Personnel Corrected for Lost Time[a]
Cataloging Personnel	$ 615.26	$2,742.73	$3,208.99	$3,357.99	$4,162.85
Cataloging Maintenance Personnel	292.46	1,449.14	1,695.49	1,753.69	2,051.82
General Administration & Planning (cataloging)	34.52	112.11	131.17	146.63	171.56
Engineering Pre-Processing	125.00	375.00	438.75	500.00	585.00
OCLC Costs	1,882.38	5,706.36	5,706.36	7,588.74	7,588.74
Supplies	1.90	12.18	12.18	14.08	14.08
	$2,951.52	$10,397.52	$11,192.94	$13,361.13	$14,574.05
			2,920 titles $3.83/title		3,819 titles $3.82/title

a. Consider that personnel time is calculated on a basis of 2080 working hours each year. Assume that the project staff averages 12 vacation days each year (96 hours) and loses one hour in 16 on rest breaks (130 hours) for a total of 226 lost hours. Add an average of 5 sick days and 11 holidays each year for a grand total of 354 hours lost or 17% of the total. Personnel costs are therefore upgraded by 17%. Walking time to EL was considered to be a real cost of the project and was included in the other personnel times.

Table 8.

Derived Costs for Conversion of Shelf List into Machine Format using OCLC Input Methods

Cost Category	2920 titles July 3-END	3819 titles June 1-END
General Administration & Planning	$ 131.17	$ 171.56
Cataloging Input-Personnel	3,208.99	4,162.85
OCLC FTU	4,239.48	5,656.56
Tapes	29.44	42.54
Prorated Terminal Depreciation	216.08	282.61
Supplies	5.68	7.58
	$7,830.84	$10,323.70
	$ 2.68/title	$ 2.70/title

Process does not include any weeding of collection and shelflist or inventory. It does assume that the monograph/serial mix would be approximately as found in this sample.

Summary and Conclusions

The EL catalog project cost data for 3819 titles (19.8 percent of the projected total of 19,280) presented here shows that the direct cost per title using 1976/77 cost parameters is $3.82. This translates, again using 1976/77 costs, into a total projected cost for the EL catalog of $73,650.

Extraction of cost elements that apply only to machine conversion of catalog records (shelf card to MARC II records on magnetic tape) which is the process that would have to occur for conversion of retrospective card catalog records as needed for a circulation and finding system or for creation of a retrospective COM catalog, results in a cost of $2.70 per title. Estimated retrospective titles for UN-L at this point are 800,000 (see pg. 69, PR 76-03). This translates into a total of $2,160,000 for UN-L. For 1.25 million titles (estimate of titles for 3 UN campuses) the cost is $3,375,000. This compares poorly with a previous estimate of $1.41 per title (see pg. 57, PR 76-03). The presumption in the $1.41 estimate was that a small percentage of titles would appear in the OCLC data base and that the FTU (first time use) charge could be avoided in a high percentage of cases. In fact, if the EL data are to be accepted as a general case, a higher percentage of titles will be in the data base. For this 3819 title sample:

82.8 percent had perfect copy

3.9 percent had copy that could be adapted

0.6 percent appeared in the data base after first search indicated no hit

12.7 percent no hit

Future applications of these data at UN-L (retrospective conversions and their expected costs) will be useful only if data can be upgraded to reflect current cost information and to fit hit ratios for the materials being input. The general formula that can be described for future recalculations as cost parameters change is: (IF is the percent inflationary factor over 1976/77 costs; it is different for each case).

Cost Factor	$ per Title Formula	New $ Cost/Title
Personnel		
Cataloging	1.09 + (1.090 x IF) =	
General Administration	.045 ± (0.045 x IF) =	
Machine Charges		
FTU	$HR^{b}\left[1.96^{a} \pm (1.96 \times IF)\right]$ =	
Terminal Proration	0.074 ± (0.074 x IF) =	
Supplies		
Tape Charges	0.011 ± (0.011 x IF) =	
General Supplies	0.002 ± (0.002 x IF) =	
	Total $/Title =	_____

a. The per title FTU of $1.48 from this study is valid only for the data base hit ratio encountered for EL materials. See Note 1 of Appendix B for a discussion.

b. Hit ratio.

Unpredictable factors that will affect determination of the IF and HR are:

1. As OCLC builds a larger data base, there may be fewer no copy cases causing an increase in the prorated FTU.

2. To date only LC books have been considered. Dewey books will require in some cases more cataloging time to check on old subject headings, entries, call numbers, etc. Old imprints may not be in OCLC. More personnel time may be required to input records.

3. Response and down time on terminals varies with time of day, day of week, etc.

4. Personnel turn-over requires retraining of new operators

5. Job classification of personnel employed on the project affects production.

6. Monograph/Serial ratios may change. A serials data base in OCLC will reduce input costs.

Appendix A: **Definitions**

Perfect Copy. Copy is accepted without change as found in the OCLC data bases.

Adapted Copy. Changes must be made to OCLC copy, either in descriptive cataloging or in classification or in subject heading assignment.

No Copy. Copy is not found in the OCLC data base.

Pre-OCLC Update. Good catalog records labeled Engineering have been made before UN-L joined OCLC. It is not necessary to produce another set of cards, but the title must be input on the archival tapes, so the record is available for production of a COM catalog.

Title. A title is a publication which forms a separate bibliographic whole, whether issued in one or several parts or volumes.

EL Titles Plus Duplicates. Engineering title plus any title or titles of the same publication located in another branch library or libraries. OCLC cards are produced simultaneously for the other location or locations.

Title in System. Title was not found initially in the OCLC data base, but between the first search and revising the workforms the title was input by another library, or the title was missed in the first search.

Processing. Books are Se-Lin labeled Engineering on spine and where needed, copy numbers added. At beginning of project, fore edges were stamped, but stamping was dropped later, because too much processing time was required.

Card Preparation. When filers file new engineering cards, old duplicate cards (not labelled Engineering) are pulled and marked E proj. Student assistants sort cards and gather together sets of cards for each title and arrange sets alphabetically by main entry. A revisor checks to see all duplicates have been pulled. If not, revisor retrieves card from public catalog. Processing uses shelflist cards to remark volumes.

Appendix B. Notes Related to Data

1. Methods for future estimates of average FTU/title:

Ave Cost/Title = A/B x FTU

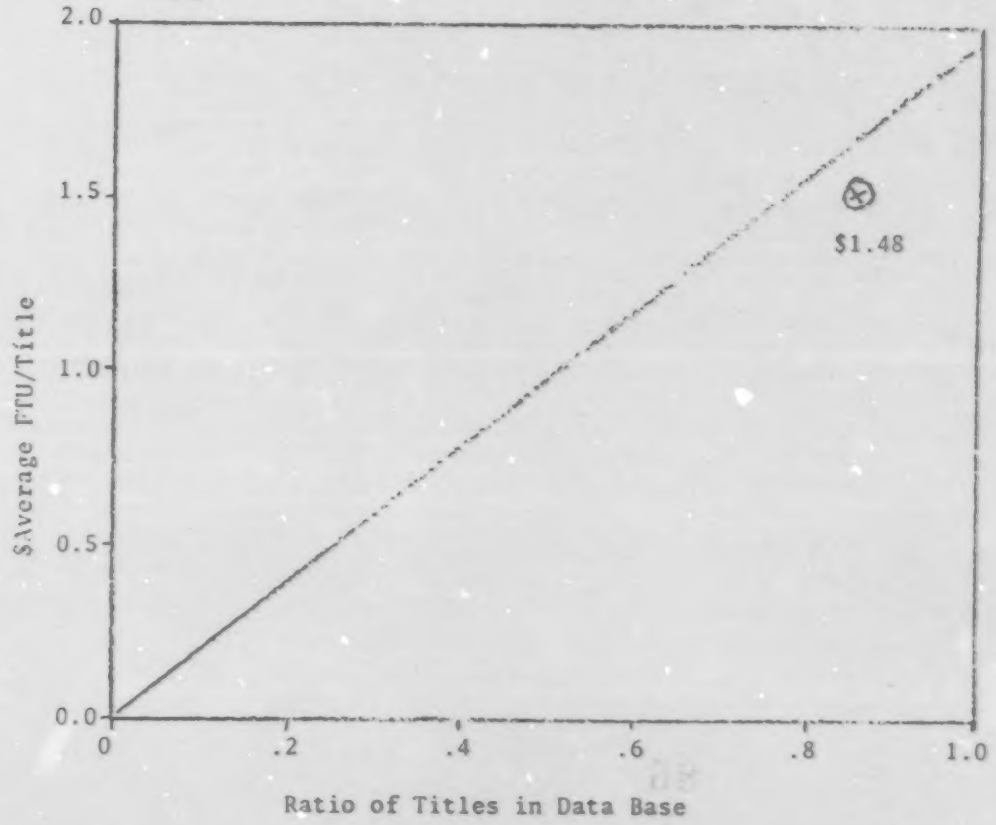
where A is titles in data base
B is total titles searched
FTU is the first time use charge

This formula corresponds to the general equation for a straight line

$$y = mx+b$$

where y is Ave FTU/title
m is slope of line
x is title hit ratio (A/B)
b is y intercept = 0 in this case

Figure 2. Hit Ratio vs FTU Charges



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2. Basis for filing costs:

   Assume an average of 11 cards/title (extra cards is not a factor)

   clerk typists ($2.60/hr) file 3/11 of card set
   students ($2.20/hr) file 8/11 of card set

   Assume that filers file 3 cards/minute

3. Basis for filing revision costs:

   Assume that 5 cards per minute can be revised.

   Assume that 1/3 are revised by $3.8750/hr Library Technologists

   Assume that 2/3 are revised by $2.7582/hr Library Assistant II's

4. Card costs are calculated on a basis of $.039/card as this is actually what was charged during the period of the study. Card costs will go to $.040 as a result of our NEBASE contract. About $.011/title should be added in the future as a result of this change.

5. EL costs for review/tagging of shelf cards are $.0778/title.

6. Administrative costs for production cataloging and catalog maintenance are included in the cost tables. General administrative costs refer to overall planning of the project by the administrative cataloger.

PRELIMINARY THOUGHTS ON AUTOMATION IN THE UNIVERSITY OF NEBRASKA LIBRARIES

B.G. Hobrock

It is clear that major automated systems in the three University of Nebraska libraries will not be possible unless they are considered on a cooperative basis. The following outline is therefore created to apply to all three UN libraries as an integrated interconnected network that can be at any level of implementation at any or all of the libraries.

Operational Sub-Systems

Assuming that the major *operations sub-systems* and associated *functions* of the UN-L Libraries (assumed to be similar for UNO and UNMC) are:

OSS	Functions
ACQUISITIONS	1. selection
	x 2. ordering
	x 3. receiving
	x 4. accounting
PROCESSING	x 5. accessioning
	x 6. cataloging
	x 7. classification
	x 8. labeling
	9. shelving
USE	x 10. searching
	x 11. locating
	x 12. retrieving
	x 13. circulating
	x 14. recalling
	x 15. photocopying
	x 16. ILL
MAINTENANCE	x 17. binding
	x 18. missing replacement
	19. withdrawals
	x 20. inventory

where those functions which readily lend themselves to automation are marked by x. the following automated modules, existing or proposed here, could cover all indicated functions.

Automated Systems Required

I. External

A. OCLC (6,7)
Regional/national, shared, on-line cataloging via OCLC or its successor will be hard to beat on a local level.

B. On-line Bibliographic Retrieval through Lockheed or SDC (10, 11, 12) UN-L should implement the Lockheed on-line bibliographic retrieval system; rapid subject access to current literature via large centralized data bases. Not cost-effective on a local basis.

II. Local (all other indicated functions)

A locally developed (cooperatively) (or purchased, if available) mini-computer based library information network for the three University library systems.

Figure 1 shows the generalized configuration of the network.

Figure 2 indicates how the UN-L configuration should look. (UNO, UNMC will be different only in the branches involved, the size of files, and the size of the mini used.)

Figure 1.
University of Nebraska
Library Network

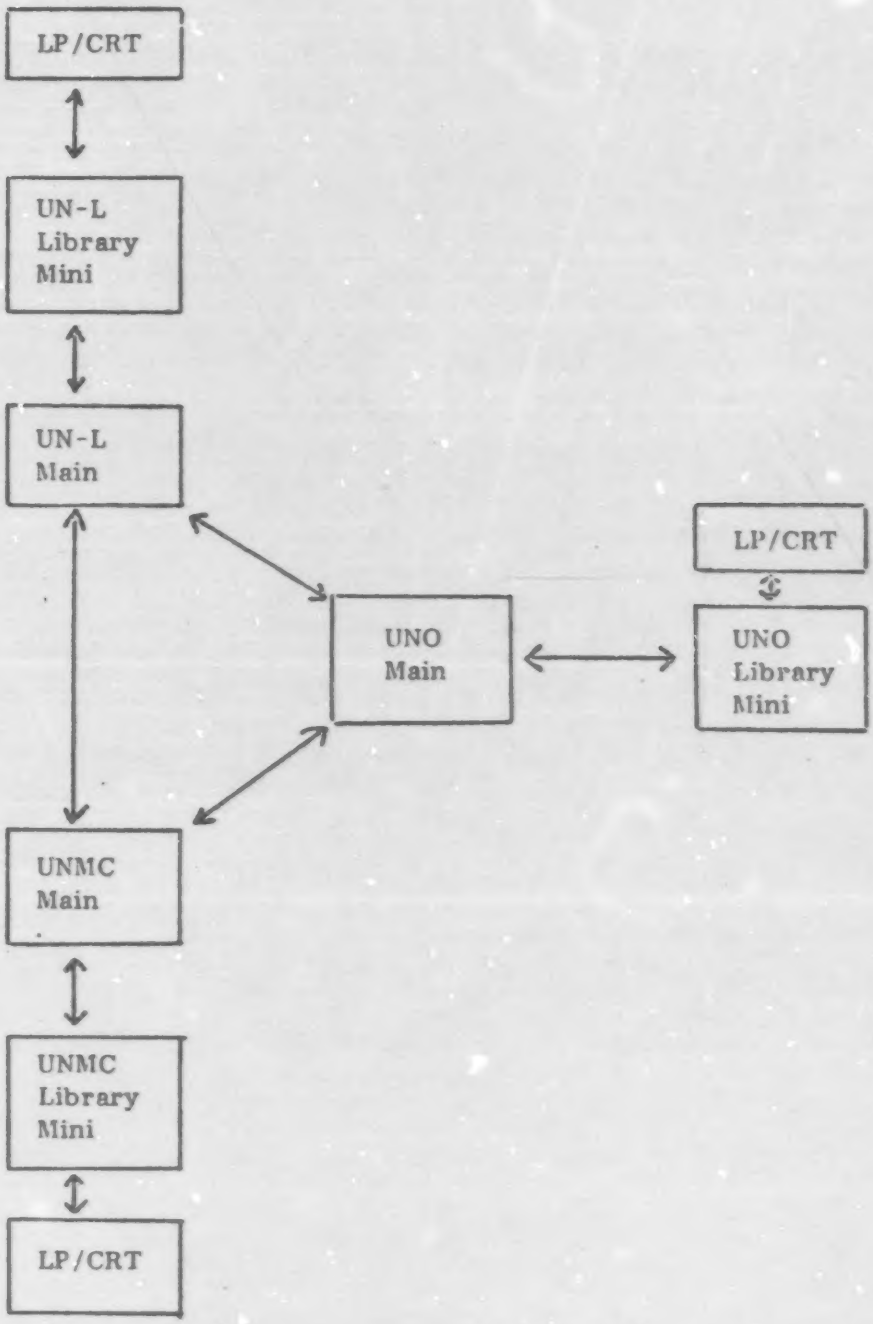

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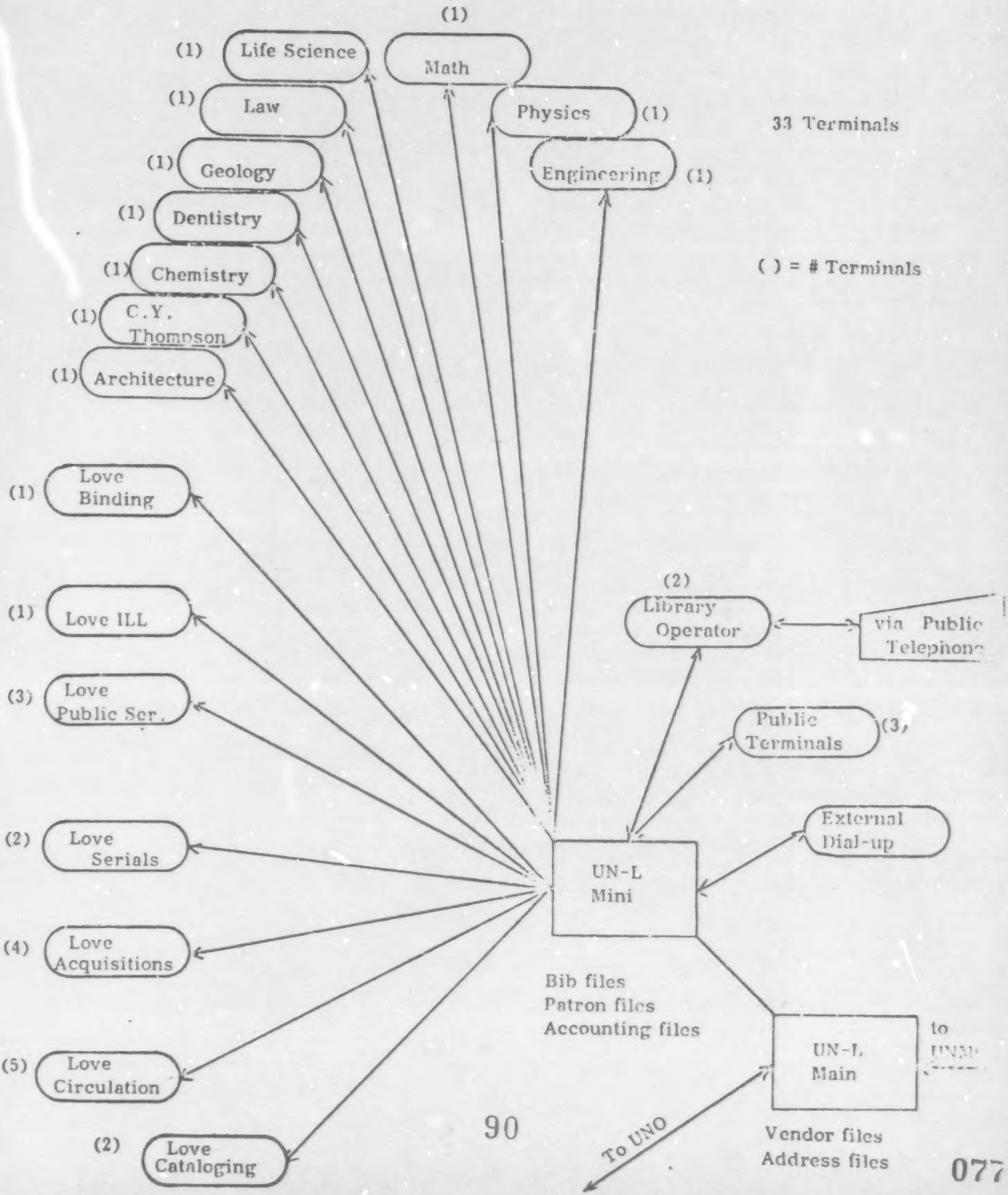
Figure 2.
UN-L Local On-Line
Network



CRITICAL POINTS/QUESTIONS

1. It is assumed that it is more cost-effective to maintain major on-line files on an in-house mini-computer than on central computing center facilities (to say nothing about the necessity of keeping the system up 100 hr per week).

2. Files requiring infrequent access will be maintained on main computing facilities and will be accessed in batch mode.

3. Libraries will have access to each other's bibliographic files through the network.

4. Entries into master bib files for individual libraries will remain even though inactive. Ultimately the system will become a supplementary record of library holdings - thus a *location* or *finding* function exists. COM outputs of holdings can result. Effectively, an on-line brief catalog results.

5. The concept of brief records (100-150 characters of bibliographic information) must be accepted.

6. Access points to master bibliographic files should be:

    1) unique number
    2) call number
    3) ATD algorithm

7. The system should be modular.

    a. subsystems of the local portion of the network can be brought up as required.

    b. branches of the main network are not mutually dependent and will not require the same size of mini-computer or the same storage.

    c. terminals for branches can be added at any time.

    d. all equipment need not be acquired immediately.

    e. master bib files need to be designed with the total system in mind.

8. The system should be programmed in a common language so local changes can be made and smaller subsystems added.

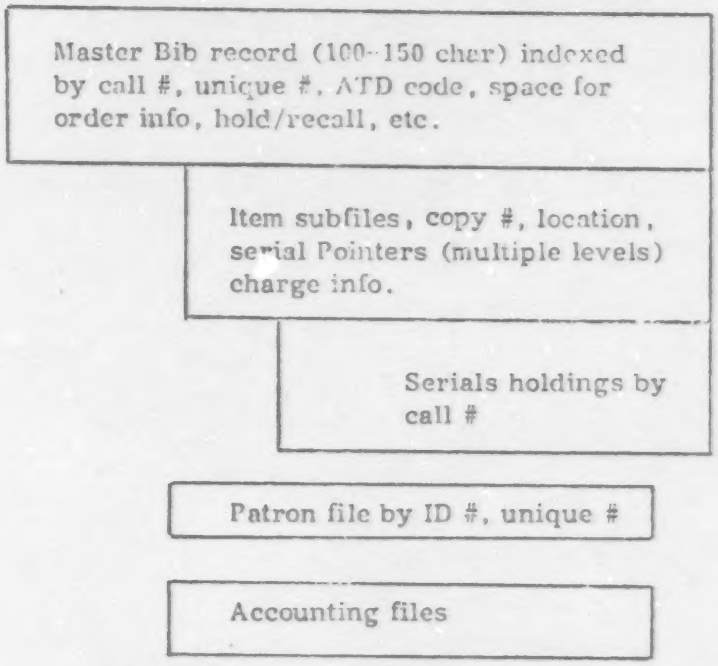
9. The effect of serials network activities (e.g., OCLC serials acquisitions and check-in, LC serials authority network plans, etc.) must be taken into account.

10. Data entry should be based on bar code/light pen technology.

Addendum to: "Automation in the University of Nebraska Libraries"

Figure 2 shows generalized entry points to the local system. It should be emphasized, however, that the major portions of the system (files) are to be designed to support a) circulation, b) acquisitions and c) serials control. The involvement of all other functions would be in the form of either *inquiry* or *location changes*.

Master bibliographic files would be designed to contain all information required to support circulation, acquisitions and serials for on-line operation. The generalized on-line files could look something like this:


Master Bib record (100-150 char) indexed by call #, unique #, ATD code, space for order info, hold/recall, etc.
Item subfiles, copy #, location, serial Pointers (multiple levels) charge info.
Serials holdings by call #
Patron file by ID #, unique #
Accounting files

Characteristics of Functions in Automated System

Circulation

Rapid automatic change of location of item in item subfile, via light pen or key entry of patron and item numbers. Placement of recall/hold on items by same methods. Inquiry for location or status of any item. Production of overdues could occur on local mini but it should be more desirable to produce them in batch mode working with master name/address files in main campus system. Circulation profiles, other management information from batch runs. Rejection of delinquent faculty/students.

Acquisitions

Assignment of unique #, on-line data entry for orders. Processing of all new orders against vendor files, accounting files. May need separate on-order files. Check-in, pay orders, all change of status on-line. All checks for duplicate via terminal. Automatic claiming. Most desirable to have all invoices, accounts on-line. Periodic production of hard-copy management information.

Serials

STO and other ordering integrated with acquisitions. On-line serial record with all check-in and adds by light pen or key entry. COM record of all serial holdings would be produced; on-line inquiry for serial holdings.

Cataloging

On-line searching for locations, status of any item. Creation of verified record of all new items.

Bibliographic Services

Searching of orders. On-line inquiry regarding location, status of item. Finding function; collection building assistance from identification of frequency of circulation of items, number of holds, etc.

Interlibrary Loan

Inquiry for location, status of requested items. Loaned items charted against master bib record.

Binding

Could create separate MBR file or could charge items to binding in master bib file.

Branches

All circulation and Bib Services functions

Public

Public CRT access to master, library files for location, status. Telephone access to Love operator for location, status and holdings. Charge and delivery to faculty.

UNIVERSITY OF CALIFORNIA
SANTA BARBARA

DEPARTMENT: Library, System: Office

PRESENT PAYROLL TITLE: Sr. E.D.P. Systems Analyst

RATE:

WORKING TITLE IF DIFFERENT:

PERCENT OF TIME:

SUPERVISOR'S NAME:

SUPERVISOR'S PAYROLL TITLE: University Librarian

DEPT. HEAD'S NAME IF DIFFERENT:

DEPT. HEAD'S TITLE:

NAMES OF THOSE SUPERVISED:

PAYROLL TITLES: Library Assistant II

STATEMENT OF DUTIES: List your regular and most important duties first. Use reverse side if necessary.

PERCENT OF TIME	TASKS
	The Systems Officer is responsible to the University Librarian for:
	1. Informing the University Librarian and the Library staff in broad areas of library systems in use, or proposed, elsewhere; advising and consulting on their possible applications in the UCSB Library.
	2. Representing the UCSB Library at regular and special meetings of the University of California Library Systems Task Force (UNCLSTAF) and participating in the formulation of all-University Library standards, and representing the UCSB Library at other local, regional and all-University meetings as required.
	3. Maintaining all ongoing computerized programs such as: Serials List, Art Exhibition Catalog List, Oil Spill Information Center List, Publishers Catalog List, Staff List, Indexes of various kinds, and others.
	4. The analysis and documentation of Library processes as required.
	5. The design and execution of such experiments as may be required to determine quantitative factors of Library processes, such as cost studies.
	6. Feasibility studies of mechanizing Library processes and the prediction of the consequences of such mechanization.
	7. The design, or adaptation, and implementation of integrated systems and their modular components.
	8. All required computer programming, and documentation of the programs.
	9. The measurement of the effectiveness of processes, before and after changes are made.

(cont.)

(Use reverse side if more room is necessary)

Retention period: As long as job is active

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PERCENT OF TIME	TASKS

10. The planning and execution of familiarization programs for the staff when new machines or new procedures are introduced.
11. Recommending changes in administrative operations which may be required to improve processes.
12. The establishment and maintenance of liaison with University departments within and outside the campus as required.
13. Maintaining a current awareness of machinery which may be applicable to Library mechanization, and to make recommendations on methods for possible utilization thereof in the UCSB Library.

(If additional space is needed, use blank sheets and attach to this form)

OW LONG HAVE YOUR DUTIES AND THE DISTRIBUTION OF TIME BEEN SUBSTANTIALLY AS ABOVE?

evision of job description approved 12/1/65.

ERTIFICATE OF EMPLOYEE: I certify that the foregoing information is correct and complete and describes my job as I understand it.

Signature Date

RTIFICATE OF IMMEDIATE SUPERVISOR AND DEPARTMENT HEAD: I have reviewed the above statements and certify to their accuracy with the exceptions noted here.

/95

UNIVERSITY OF ALBERTA

Position Description

POSITION:	Head	INCUMBENT:	J. Thompson
DEPARTMENT:	Systems Planning and Development The University Library	DATE:	March 3, 1975
		ANALYST:	E. M. Cherniavsky

GENERAL ACCOUNTABILITY

Reporting to the University Librarian, the Head of Systems Planning and Development is accountable for maintaining and expanding, within the framework of departmental objectives, effective automation services throughout the Library System.

NATURE AND SCOPE

This position is one out of four positions reporting directly to the University Librarian. The others are: the Associate Librarian, the University Archivist, and the Head of Administrative Services. In addition, the Assistant Librarian (Technical Services), the Coordinator of the Humanities and Social Sciences Library, the Coordinator of Collections Development, the Coordinator of Circulation Services, and the Chairman of the Public Services Coordinating Committee report to the Chief Librarian through the Associate Librarian.

Reporting directly to the Incumbent are 8 (plus 1 vacant) positions, as follows:

1 Systems Analyst - This is a senior analyst who regularly meets with clients to discuss their immediate and future needs. Also performing bookkeeping duties, he works in conjunction with

4 Programmers [2-IIs, 1-III, 1-I] - who either assist the senior analyst in discussing clients' needs, or design and provide programs in accordance with clients' specifications. The Programmer III is, moreover, essentially responsible for the effective utilisation of

machine resources.

1 Senior Key Punch Operator - who is responsible for the data entry operations by the Department. She is assisted by

1 Key Punch Operator - who reports, on a day-to-day basis, to the above.

1 Secretary - acts as departmental secretary and receptionist. Performs all secretarial and clerical duties and handles daily distribution of reports produced from the operating systems.

Two major objectives govern the activities of Systems Planning and Development:

(1) to review all present operations in the Library System and to assess whether they can be improved through automation;

(2) to assess potential application of external innovations towards an improved Library System.

To achieve these objectives, the Incumbent undertakes first to build up a competent technical and clerical support staff within his department in order to provide efficient service to present clients, and reliable advice to potential clients. The Incumbent then assures, on a daily basis, that all orders are effectively assigned amongst the support staff, most of whom - at present - undertake to work fairly flexibly with regard to job duties. For example, three of the four programmers interview clients to discuss the potential advantages automation can offer and to analyse clients' present and potential needs, and then complete these system changes necessary to incorporate the new or revised systems functions. The Systems Analyst, on the other hand, in addition to regularly visiting with clients and reporting on their requirements, has been handling the department's bookkeeping functions, which the Incumbent plans to take over soon. The Department's Secretary, apart from performing her

routine secretarial, clerical, and receptionist duties, records operations control statistics and distributes computer output reports to the client departments.

To ensure a competent support staff, the Incumbent interviews, selects, and recommends to Personnel all candidates for vacant positions. He routinely reviews the performance records of all non-academic personnel, and completes their annual performance ratings - except for that of the Key Punch Operator, which is done by the Senior Key Punch Operator (under whose supervision this particular employee works). The Incumbent, with a view to raising performance levels and motivation, encourages his employees to participate in training programs and instructional seminars, and by counselling them individually on their growth potentials.

To provide an efficient structure from which to operate, the Head of Systems & Development must ensure that

(a) programs are set up on a daily and monthly basis, which requires the daily submission of programs and data for processing and validation of output;

(b) he is fully familiar, at all times, with the state of progress on analyses and new programming aspects, which he discusses with each analyst and programmer on an average of twice weekly; and

(c) he keeps well informed of areas of general interest to the Library System.

To pursue the foregoing objectives, the Incumbent must be fully familiar with all Library "systems" themselves, that is, with the capabilities inherent in these systems and with their potential for maximum utilisation.

Through personal contact and discussions with representatives in other Library Systems, the Incumbent discusses the potential impact to be expected from increased automation. He may draw on the experiences of other Libraries or evaluate the possibilities of an original project. When a new project is requested by a client, the Incumbent formulates a proposal which he submits to the Administration for consideration and approval.

For the current academic year (1974-75), Systems Planning and Development holds a contract with the Office of Administrative Systems for a total of $75,000, mainly to provide computing services for the Circulation, Periodicals, and Reserve Room Systems, and for miscellaneous items. While, at present, this contract involves only routine bookkeeping handled by the Systems Analyst, the Incumbent intends to identify expenditures to permit better control of this budget. The other major contract which Systems Planning holds this year is with Computer Services ($11[illegible],644) covering services for the Acquisitions and Cataloguing Systems, and some miscellaneous items.

The projected operating budget for 1975-76, excluding salaries, amounts to $220,000. The Incumbent has compiled a comprehensive statement reconciliating specific requirements. Under the above amount, the major item consists of $160,000 for Computing Services,

of which $40,000 are projected for Indirect Equipment Rentals. Direct Equipment Rentals are estimated at $26,000; Project Funds at $25,000, and Supplies and Sundries at $50,000. The total payroll for the non-academic staff amounts to an additional $75,000. At the present time, capital equipment requirements are relatively insignificant, as specialised equipment used by the Department is acquired on a rental basis and is not purchased.

Within the Library, the Incumbent maintains active public relations with allDivisions to advise them of the complete range of services, products, benefits, and limitations which automation can offer. Outside the Library System, but within the University, the Incumbent deals primarily with the Offices of Administrative Systems and Computing Services (which provide most automation services for Systems Planning) and with representatives at the Registrar's and Comptroller's Offices, whom he consults with regard to programming for areas of interdependency.

The Incumbent serves as Chairman of the Systems Steering Committee, which discusses and plans objectives; he has contributed to a report dealing with the handling of machine-readable information, which resulted from a joint committee between the Library and Computing Services. Furthermore, the Incumbent acts as APO representative on the Salaries and Promotions Committee for the Library, andwas a member of an ad hoc Committee to Re-Assess Circulation Services.

The Incumbent maintains active liaison with professional organizations and counterparts in other institutions outside this University, both by correspondence and in person (attending meetings and conferences). In this context, he discusses such objectives as the reduction of unit costs for processing additions to the Library collection and the increasing availability of information to the user. From time to time, in his capacity as purchasing representative for the Department, he meets with potential suppliers, such as computer equipment manufacturers.

DIMENSIONS

Projected Operating Budget (1975-76)	$295,000
Payroll of supervised staff	75,000
Computing Services	160,000
Indirect Equipment Rentals	40,000
Direct Equipment Rentals	26,000
Supplies	20,000
Projects	14,000

SPECIFIC ACCOUNTABILITIES

1. Assures competent technical and clerical support services in Systems Planning by performing all relevant personnel functions.

2. Performs management functions for Systems Planning by monitoring all facets of operations with particular emphasis on analysis and programming.

3. Contributes towards achieving increased efficiency of Library operations by assessing, through research and planning, potential benefits from expanded automation and adaptation of external innovations.

4. Assists in budget preparation and control by compiling analyses of financial accounts and reconciliations for projected requirements.

5. Collects and exchanges valuable information on current professional and technical developments by maintaining close liaison with relevant sources within the University as well as beyond its domains.

Incumbent's Signature

Supervisor's Signature and Title

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UNIVERSITY OF MASSACHUSETTS
AMHERST

JOB DESCRIPTION

OFFICIAL TITLE: Staff Assistant

This is the official title of the position as authorized by the Board of Trustees of the University of Massachusetts.

FUNCTIONAL TITLE (If Any): Senior Programmer/Analyst

This is the in-house title by which the position may be known. A functional title is usually a more descriptive title than the official title and may be required to identify very specific kinds of work. This title may be used in signing all correspondence.

GENERAL STATEMENT OF DUTIES:

Please provide a brief overview of the general functions of this position.
(*Specific* details of duties should be reserved for the *Examples of Duties* section.)

Studies and designs new library automated systems or improvements to existing operations, and performs the computer programming and documentation necessary to implement such systems or improvements in the university library.

SUPERVISION RECEIVED:

Please indicate the title, but not the name, of the administrative employee or employees responsible for supervision or direction of your work; describe the divergent extents of authority of each, indicating the degree, priorities, and relationships of the supervision or direction, which could range from close supervision to supervision with considerable freedom.

Works under the general supervision of the Library Systems Manager.

SUPERVISION EXERCISED:

Using descriptive non-numerical terms, identify the scope of supervision, training or direction exercised (i.e., whether the supervision is over a few employees, a small number of employees, a large number of employees, etc.); also, describe the degree of supervision, indicating whether close supervision or general direction is involved, and categorize the physical conditions under which the supervision is given, such as in a laboratory or an office. Supervision of student employees should not be included in this section, but may be listed under *Examples of Duties*, if applicable.

None.

EXAMPLES OF DUTIES:

Please list and briefly describe several of the duties and responsibilities typically performed and assumed in your position. This list should not be restrictive but should be descriptive in such a manner as to provide concrete information representing examples of the actual work as well as the level of responsibility you may have for the work being performed.

1. Designs and implements new automated library systems.

2. Modifies and maintains existing automated library systems.

3. Performs designing and programming of necessary computer programs.

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5. Documents systems and programs.

6. Acts as liaison with other library and university departments.

7. Facilitates incorporation of new and/or changes systems into existing procedures.

8. May be asked to represent the Library at professional meetings and conferences.

9.

QUALIFICATIONS:

Please indicate in a general way the knowledge, abilities, skills, education and experience necessary for *any* individual to assume this position. It is not the objective of this section to list any one person's specific personal traits and training. It is important to indicate, also, what degree of competence would be required (i.e., *considerable* education, *extensive* experience, *working* knowledge, etc.) to perform the duties and assume the responsibilities typical of this position.

1. Bachelor's degree.

2. At least two years of experience in systems analysis and extensive programming experience in at least one higher level computer language.

3. Working knowledge of recent developments, methods, publications and techniques in programming and systems analysis.

4. Extensive training in programming and systems analysis.

5. Ability to analyse and advise on problems.

6. Ability to prepare reports and informative articles.

UNIVERSITY OF MASSACHUSETTS
CAMPUS Amherst

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JOB DESCRIPTION

OFFICIAL TITLE: Staff Assistant

This is the official title of the position as authorized by the Board of Trustees of the University of Massachusetts.

FUNCTIONAL TITLE (If Any): Programmer/Analyst

This is the in-house title by which the position may be known. A functional title is usually a more descriptive title than the official title and may be required to identify very specific kinds of work. This title may be used in signing all correspondence.

GENERAL STATEMENT OF DUTIES:

Please provide a brief overview of the general functions of this position.
(*Specific* details of duties should be reserved for the *Examples of Duties* section.)

Assists in the design of new library automated systems or improvements to existing operations, and performs the computer programming and documentation necessary to implement such systems or improvements in the university library.

SUPERVISION RECEIVED:

Please indicate the title, but not the name, of the administrative employee or employees responsible for supervision or direction of your work; describe the divergent extents of authority of each, indicating the degree, priorities, and relationships of the supervision or direction, which could range from close supervision to supervision with considerable freedom.

Works under the general supervision of the Library Systems Manager

SUPERVISION EXERCISED:

Using descriptive non-numerical terms, identify the scope of supervision, training or direction exercised (i.e., whether the supervision is over a few employees, a small number of employees, a large number of employees, etc.), also, describe the degree of supervision, indicating whether close supervision or general direction is involved, and categorize the physical conditions under which the supervision is given, such as in a laboratory or office, etc. Supervision of student employees should not be included in this section, but may be listed under *Examples of Duties*, if applicable.

None.

EXAMPLES OF DUTIES:

Please list and briefly describe several of the duties and responsibilities typically performed and assumed in your position. This list should not be restrictive but should be descriptive in such a manner as to provide concrete information representing examples of the actual work as well as the level of responsibility you may have for the work being performed.

1. Assists in the design in implementation of new automated library systems
2. Modifies and maintains existing automated library systems.
3. Codes, tests, implements, and maintains computer programs.

Examples of Duties – continued

4. Documents systems and programs.

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5. Acts as liaison with other library and university departments.

6. Facilitates incorporation of new and/or changes systems into existing procedures.

7. May be asked to represent the Library at professional meetings and conferences.

8.

9.

QUALIFICATIONS:

Please indicate in a general way the knowledge, abilities, skills, education and experience necessary for any individual to assume this position. It is not the objective of this section to list any one person's specific personal traits and training. It is important to indicate, also, what degree of competence would be required (i.e., *considerable* education, *extensive* experience, *working* knowledge, etc.) to perform the duties and assume the responsibilities typical of this position.

1. Bachelor's degree.

2. Ability to perform systems analysis, and programming experience in at least one higher level computer language.

3. Working knowledge of recent developments, methods, publications and techniques in programming and systems analysis.

4. Training in program and systems analysis.

5. Ability to analyze and advise on problems.

6. Ability to prepare reports and informative articles.

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UNIVERSITY OF MASSACHUSETTS
CAMPUS Amherst

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JOB DESCRIPTION

OFFICIAL TITLE: Staff Associate

This is the official title of the position as authorized by the Board of Trustees of the University of Massachusetts.

FUNCTIONAL TITLE (If Any): Library Systems Manager

This is the in-house title by which the position may be known. A functional title is usually a more descriptive title than the official title and may be required to identify very specific kinds of work. This title may be used in signing all correspondence.

GENERAL STATEMENT OF DUTIES:

Please provide a brief overview of the general functions of this position. (*Specific* details of duties should be reserved for the *Examples of Duties* section.)

Administers the Library Systems Department of the University Library, and is responsible for planning of all Library automation.

SUPERVISION RECEIVED:

Please indicate the title, but not the name, of the administrative employee or employees responsible for supervision or direction of your work; describe the divergent extents of authority of each, indicating the degree, priorities, and relationships of the supervision or direction, which could range from close supervision to supervision with considerable freedom.

Reports to the Director of Libraries, who reviews performance for effectiveness and conformance with established policies, rules and regulations, but has independent responsibility without immediate supervision.

SUPERVISION EXERCISED:

Using descriptive non-numerical terms, identify the scope of supervision, training or direction exercised (i.e., whether the supervision is over a few employees, a small number of employees, a large number of employees, etc.); also, describe the degree of supervision, indicating whether close supervision or general direction is involved and categorize the physical conditions under which the supervision is given, such as in a laboratory or an office. Supervision of student employees should not be included in this section, but may be listed under *Examples of Duties*, if applicable.

Has full responsibility for the Library Systems Department of the University Library including supervision of all personnel and management of all services of the Department.

EXAMPLES OF DUTIES:

Please list and briefly describe several of the duties and responsibilities typically performed and assumed in your position. This list should not be restrictive but should be descriptive in such a manner as to provide concrete information representing examples of the actual work as well as the level of responsibility you may have for the work being performed.

1. Directly manages all phases of activity of the Library Systems Department.
2. Has primary responsibility for planning of all Library automation.
3. Serves as library expert in library automation.

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Examples of Duties – continued

4. Acts as automation liaison with other library and university departments.

5. Assists in formulating, revising or implementing library policies and procedures; and interprets such policies and procedures for students, faculty and staff as needed.

6. Gives lectures and special instruction in library automation.

7. May be asked to represent the Library at professional meetings and conferences.

8.

9.

QUALIFICATIONS:

Please indicate in a general way the knowledge, abilities, skills, education and experience necessary for any individual to assume this position. It is not the objective of this section to list any one person's specific personal traits and training. It is important to indicate, also, what degree of competence would be required (i.e., considerable education, extensive experience, working knowledge, etc.) to perform the duties and assume the responsibilities typical of this position.

1. Bachelor's degree.

2. At least ten years of experience in systems analysis and library automation.

3. Thorough knowledge of recent developments, methods, publications and techniques in programming, systems analysis and library automation.

4. Extensive training in systems analysis.

5. Ability to analyze and advise on problems.

6. Ability to prepare reports and informative articles.

7. Thorough knowledge of library organization, policies and procedures.

8. Demonstrated successful administrative ability

Graduate degree in an appropriate discipline highly desirable.

TEMPLE UNIVERSITY LIBRARY TEMPLE UNIVERSITY

TUL/TSD Code No.: 400-L1

Position Description

Name: Wilbur C. Trautman Position Title: Department Head

Department: Post Catalog Section: _____

Date: July 1977

Outline

I. Specific Duties:
II. Specific Responsibilities (supervisor, decision making, etc.):
III. Additional Comments:

Narrative description of items I, II, and III.

The Department Head is responsible for the management of the Post Catalog Department (Material Processing, Typing, and Special Projects Sections). This management is accomplished by interpreting, guiding, and directing the execution of TSD policies and procedures; evaluating the efficiency of operations; and recommending improvements. Direct clerical assistance is provided by the Departmental Clerk.

Specific responsibilities and tasks are to:

a. Guide and evaluate the Supervisors, Unit Leaders, and the Departmental Clerk in the performance of their duties.

b. Evaluate efficiency of the operation of each Post Catalog Section.

c. Maintain a satisfactory state of morale and discipline within the Department.

d. Coordinate the activities of the Post-Catalog Sections including assignment of priorities, temporary reassignment of personnel, and comparison of workloads assigned.

e. Report the status of Post Catalog operations including any problem areas to the Associate Director.

f. Possess a working knowledge of all departmental procedures, preparing new procedures, and revisions as necessary.

g. Maintain a daily working knowledge of all personnel assigned to the department.

h. Review literature concerning new developments and/or equipment.

i. Make recommendations concerning improved methods, procedures, and/or equipment.

j. Interview applicants for positions in the Department.

k. Ensure the operation of the Departmental training program.

l. Ensure that all equipment and spaces assigned to the department are properly operated, maintained, and accounted for.

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m. Represent the Department in meetings, conferences, routine interdepartmental procedures, and routine contact with other University Offices, commercial firms, etc.

n. Review flow of material reports in the Division, anticipate delays, backlogs, etc.; recommend solutions to processing problems.

o. Supervise quality control procedures of Divisional Operations based on sampling of selected activities.

p. Analyze tasks and standards in the Division.

q. Maintain and analyze statistics; make recommendations concerning collection and use of statistical data.

r. Review changes (recommended or implemented) in procedures in terms of their impact on other procedures.

s. Analyze Divisional status report program.

t. Prepare for the Associate Director and Department Heads periodic reports on the status of Divisional level of operations.

u. Monitor control of student budget.

v. Monitor position vacancies, absence without pay, etc.

w. Edit the Monthly Summary of TSD.

x. Assist Coordinator of Automated Activities (TSD) and act as her substitute.

y. Such other responsibilities and tasks as may be assigned.